

# The Great Marsh (Part One): Past and Present



## Executive Summary

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This video is the first of a two-part series about The Great Marsh. Part One is titled The Great Marsh, Past and Present. Part Two of this presentation is titled The Great Marsh, Our Future Together.

This 27-minute video begins with an overview of the marsh's characteristics, including its size, location, and features. It then reviews the history of the marsh and how it was formed over tens of thousands of years, because understanding the geologic past helps us forecast the future. It presents the marsh as an ecological system, including how humans, plants, and animals use and experience the marsh. The last section of Part One is a discussion about climate change, a topic that will be covered more extensively in Part Two, when we begin to consider the future of the marsh.



## Using This Video In Class

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### Pre-assigned Vocabulary words

Students should be familiar with the following vocabulary words prior to watching the video. These words can be assigned as homework or discussed by the class.

barrier island  
estuary  
sequester

contiguous  
tidal river  
organic

wetland  
urbanization  
hunter-gatherers

salt marsh  
peat  
shoal

### Video Discussion Breaks

This 27-minute video has four pause breaks for discussion. Budget your time in order to complete the video in one class period.

- at 3:04      Share your theory: Why do you think the size of the marsh matters?
- at 4:03      Test your knowledge: Name the nine towns that border the Great Marsh on the North Shore of Massachusetts and in Southern New Hampshire.
- at 15:24     Try this challenge: Each student should name one way beings - humans, plants, or wildlife - use or enjoy the marsh. No two answers should be alike. Record everyone's ideas.
- at 21:02     Discuss: How do you describe climate change? What are some of the keywords or phrases that you think about when you think about climate change?



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## Using this Video in Class (continued)

### Note-taking

Encourage your students to take careful notes! To facilitate note taking, have them copy the following topic headings, allowing space to record notes for each section of the video (about a half page per topic):

1. Overview: The Great Marsh
2. Geology of the Great Marsh
3. Human History and the Great Marsh
4. The Great Marsh Benefits
5. Climate Change



## Jeopardy Game

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If you choose, your students can play a Jeopardy game to review the information in this video. This game may be played in small groups by individuals or in larger groups as teams.

The video ends with “We hope you took careful notes, because we have provided an activity that will challenge you to recall some of the important information discussed today. Your notes will come in handy at that time.”

### Instructions to play:

1. Put the Jeopardy slideshow into “present” mode.
2. When a student picks a “question,” click on the corresponding box on the game board to reveal the question.
3. Once the question has been answered, click on the “back to board” arrow in the lower right-hand corner to return to the game board.
4. Make sure you are keeping track of the scores, and make note of which questions have been answered as you play.

Jeopardy Responses Key (attached at end of teacher Guide)

[PLAY JEOPARDY](#)



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## Further Study/Homework Options

### Create your own two-minute video

This is a four-minute trailer of [The Sea Behind the Dunes](#), which you can use for inspiration. It summarizes a 1980 Nova film covering a year in the life of Pleasant Bay, at the elbow of Cape Cod, before the break in the barrier beach. It includes beautiful footage of the marsh there and follows the lives of marine animals and birds of many kinds as they respond to the changing seasons.

How about creating your own video to explore something about the marsh that has captured your interest? Use video, photos, and illustrations from our local marsh and add your own descriptive narration.

### Take photographs on the Great Marsh

Try to capture the biodiversity of this ecosystem. Label photos with descriptive captions.

### Make a poster or PPT

1. Marsh plants are uniquely hardy and adaptable to variable conditions. Make a poster or PPT listing and illustrating plants that grow in the marsh and ID as High Marsh or Low Marsh plants.
2. The marsh has been referred to as “the nursery of the sea.” Make a poster or PPT listing and illustrating fish and other critters that use the Great Marsh as a nursery.
3. The marsh is home to a great variety of birds. Some are year-round, some are only there in the summertime, and some are just passing through during migration. Make a poster or PPT focusing on the birds in one of these groups, or you can select a few birds from all three groups, clearly identifying which group they belong to.

### Reassemble a Timeline



Take an out-of-order list of both geologic and historic events provided by your teacher. You will reorganize them from first to last, or earliest to latest, and match them with “years ago / date.”

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## Resources

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### **What's being done locally to protect the Salt Marsh Sparrow:**

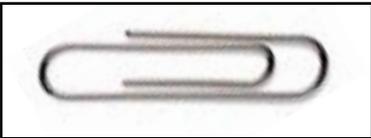
[https://www.newburyportnews.com/news/local\\_news/saving-the-salt-marsh-sparrow/article\\_1e545176-d460-5465-bcf1-de53663b926b.html](https://www.newburyportnews.com/news/local_news/saving-the-salt-marsh-sparrow/article_1e545176-d460-5465-bcf1-de53663b926b.html)

### **Conserving Coastal Wetlands for Sea Level Rise Adaptation** (good overview of the marsh's role in mitigating climate change)

<https://coast.noaa.gov/applyit/wetlands/understand.html>

### **Salt Marsh Science teacher resources from Mass Audubon** (resources and links for the Salt Marsh Science Project)

<https://www.massaudubon.org/get-outdoors/wildlife-sanctuaries/indicott/salt-marsh-project/resources-links>



## Attachments

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On the next two pages are the responses sheet for the Jeopardy game and a sequencing challenge organizing geologic events and earlier human activities on the marsh.

## THE GREAT MARSH, PART 1

### JEOPARDY RESPONSES

#### OVERVIEW

- \$200: What is the Great Marsh?
- \$400: What is a barrier island?
- \$600: What is Boston?
- \$800: What are tidal rivers?
- \$1000: What is an estuary?

#### ECOSYSTEM

- \$200: What is erosion?
- \$400: What is flooding from the incoming tide?
- \$600: What is peat?
- \$800: What is hydrogen sulfide?
- \$1000: What is the Salt Marsh Sparrow?

#### HISTORY

- \$200: What is 10 miles?
- \$400: What is 2000 years?
- \$600: What are hunting and fishing?
- \$800: Who were the Pennacook?
- \$1000: What is 90%?

#### NATURAL RESOURCES

- \$200: What is salt marsh hay?
- \$400: What is Boston Haymarket?
- \$600: What are beach plums, cranberries, oysters, smelt, or herring?
- \$800: What is 90%?
- \$1000: What is a filter? (or sponge)

#### CLIMATE CHANGE

- \$200: What is sea level rise?
- \$400: What are greenhouse gases?
- \$600: What is carbon dioxide?
- \$800: What is 2 degrees?
- \$1000: What is the Gulf of Maine?

\_\_\_\_\_ name

\_\_\_\_\_ date

**The Great Marsh, Part 1**  
Sequence of Geologic and Historic Events

The geologic and historic events listed below are **out of order**. First, reorganize them from *first to last*, or *earliest to latest* and write the number on the line on the right. They will correspond to the times listed in the "years ago / date" column. There are several that may be tricky (and surprising!) Copy them on the lines below when your class goes over them.

- | <u>events</u>   | <u>order</u> |
|---|--------------|
| ▪ epidemic swept through region, killing huge numbers of native peoples   | _____        |
| ▪ ice and glaciers began to retreat   | _____        |
| ▪ Great Marsh began to look like it does today  | _____        |
| ▪ small bands of hunter-gatherers appeared in what is now the Merrimack Valley  | _____        |
| ▪ Plum Island was eventually formed by sediment deposited offshore by a river system                                      | _____        |
| ▪ local inhabitants established small farming settlements, moving between inland forests in winter and seacoast in summer | _____        |
| ▪ European settlers arrived in northeastern Massachusetts   | _____        |
| ▪ large portions of North America covered with ice sheets and glaciers  | _____        |

years ago  
/ date

what happened

18,000

\_\_\_\_\_  
\_\_\_\_\_

17,000

\_\_\_\_\_  
\_\_\_\_\_

8,500

\_\_\_\_\_  
\_\_\_\_\_

6,000 to 2,000

\_\_\_\_\_  
\_\_\_\_\_

about 3,000

\_\_\_\_\_  
\_\_\_\_\_

about 2,000

\_\_\_\_\_  
\_\_\_\_\_

around 1617

\_\_\_\_\_  
\_\_\_\_\_

mid 1630's

\_\_\_\_\_  
\_\_\_\_\_