

## **Virtual Field Trip Extended Activity**

**LESSON TITLE:** The Vanishing Coastline of Louisiana

Adapted from [Global Oneness Project](#)

**RECOMMENDED GRADES:** 6-12

**TIME NEEDED:** 50 Minute Class for Main Lesson and Activity

### **OBJECTIVES:**

Students will be able to:

- Examine how coastal areas are impacted by the effects of climate change such as rising sea levels, stronger storms, and coastal erosion.
- Explain how climate change impacts communities by forcing residents to leave their homes.
- Propose solutions that can be enacted by individuals, our school, and the community.

### **MATERIALS:**

Students will need a notebook, computer, markers/colored pencils, large white paper.

### **PREPARATION:**

Students will have a class to review and understand climate change. Students should be able to verbally explain: what is climate change?

### **DIRECTIONS:**

#### **Exploration and Discovery:**

1. Introduce the film by telling students that they will be watching two lifelong residents who live on the Isle de Jean Charles (a tiny island community off the Louisiana coast vulnerable to hurricanes) reflect on the changes that lie ahead of them. Ask students if they (or their family members) have experienced a hurricane or natural disaster.
2. Class discussion: How can a hurricane affect the community it strikes?
3. Begin with Film about Isle de Jean Charles (8 minutes)  
<https://www.globalonenessproject.org/library/films/isle-de-jean-charles>
4. Individually, students record their answers in their notebooks. What are some visual indications about the impact of climate change on Isle de Jean Charles?

### **Testing Ideas:**

(In groups) Students are given the following questions to answer in groups of 3-4. Students will write their ideas in their notebooks. Students should refer back to the video. They may do additional research on their computer to answer each question.

1. What are some advantages and disadvantages for people living near the coast?  
What do the people in the film like and dislike about living on the Louisiana coast?
2. During a hurricane, areas like Island de Jean Charles experience storm surge, and there may be no way of getting out for the residents who did not evacuate. Do you

think people should be forced to leave their homes during a hurricane? Why or why not?

3. The people of the Isle de Jean Charles think they are quickly becoming climate refugees. If the Isle de Jean Charles goes underwater, what could be lost? What might the residents of the island lose if they became climate refugees?

**Community Analysis and Feedback:**

Students will share their ideas and decide what they know about how coastal areas and their communities are impacted by climate change. Students will then create three wondering questions to determine further research.

**Benefits and Outcomes:**

Students will benefit from listening to the ideas of their classmates and developing empathy skills. The outcome of their wondering questions will allow them to figure out what additional research they need to do.

**PRIOR SKILLS & UNDERSTANDINGS NEEDED:**

Students will need to understand: What is Climate Change?

Background on The Isle de Jean Charles:

Isle de Jean Charles is located in the bayous of Southern Louisiana. The island’s coastline is disappearing due to rising seas, oil drilling, and storms the land is slipping away.

1. In the 1930s, oil companies carved canals in the surrounding marshlands to access their oil rigs. The canals brought in saltwater, eroding the island and killing plant life.
2. Flood control dams (on the Mississippi River)- prevented the natural flow of silt that historically helped rebuild the island.
3. Rising sea level- due to melting polar ice, water is covering more land.
4. An increase in severe hurricanes- could destroy their homes and communities.

**MODIFICATIONS:**

Students may draw their understanding, rather than writing out their answers.

**EXTENSIONS:**

Students will apply their new understanding of the effects of climate change and how that will impact our city as they read *Ship Breaker* by Paolo Bacigalupi. The setting of the story is a post-apocalyptic “drowned city” called Orleans. Students will use textual evidence to determine how coastal areas and their communities are impacted by climate change.

**VOCABULARY:**

Deforestation  
Carbon Cycle  
Climate Refugees  
Greenhouse Effect

**ASSESSMENT:**

In groups, students will model the causes and effects of rising sea levels, stronger storms, or

coastal erosion on the New Orleans community. Students should incorporate the vocabulary words Deforestation, Carbon Cycle, Climate Refugees, and Greenhouse Effect in their model. Then, students will propose three solutions one for individual, school, and community to combat climate change that will be listed on their group paper.

Students will use large paper and markers/colored pencils to create their final product. Groups will present their model to the class by explaining the effect on the community and their proposed solutions.

### **STUDENT RESOURCES:**

*Climate 101: Oceans* (Washington, DC: National Geographic Partners)

Oceans serve as the planet's largest habitat and also help to regulate the global climate. How is climate change impacting the ocean? Find out more about the ocean, including the consequences of, and potential solutions to, these changes.

<https://video.nationalgeographic.com/video/101-videos/0000015d-e144-d466-a57f-f9cc675a0000>

"Understanding Global Change," University of California Museum of Paleontology, accessed January 11, 2019.

The Understanding Global Change Framework provides a conceptual model for visualizing global change topics and how the processes interact to influence the whole Earth system. Use this infographic to think about how human and non-human causes of global change influence measurable changes in ice cover and Earth's sea levels.

<https://www.hhmi.org/biointeractive/understanding-global-change>

*Why Melting Glaciers Matter to the Coasts* (National Park Service, 2014)

This video demonstrates how melting land ice, such as glaciers or ice sheets, raises sea level. It explains how warming in faraway places like Antarctica matters to people on coasts worldwide. It also includes a simple demonstration with inexpensive materials that teachers can use in their own classrooms.

<https://www.nationalgeographic.org/media/why-melting-glaciers-matter-coasts/>

"Surging Seas: Risk Zone Map," Climate Central, accessed January 11, 2019.

This map shows areas vulnerable to near-term flooding from different combinations of sea level rise, storm surge, tides, and tsunamis, or to permanent submersion by long-term sea level rise.

[https://ss2.climatecentral.org/#12/40.7298/-74.0070?show=satellite&projections=0-K14\\_RCP85-SLR&level=5&unit=feet&pois=hide](https://ss2.climatecentral.org/#12/40.7298/-74.0070?show=satellite&projections=0-K14_RCP85-SLR&level=5&unit=feet&pois=hide)

"Sea Level Rise Viewer," Digital Coast, National Oceanic and Atmospheric Administration, accessed January 11, 2019. <https://coast.noaa.gov/digitalcoast/tools/slr.html>

This web mapping tool helps visualize community-level impacts from coastal flooding or sea level rise.

Smith, Brendan. (2011 November 23). *The Coming Green Wave: Ocean Farming to Fight Climate Change*. The Atlantic.

<https://www.theatlantic.com/international/archive/2011/11/the-coming-green-wave-ocean-farming-to-fight-climate-change/248750/>

Camila Domonoske. (2016 November 30). *Deforestation Of The Amazon Up 29 Percent From Last Year, Study Finds*. NPR.

<https://www.npr.org/sections/thetwo-way/2016/11/30/503867628/deforestation-of-the-amazon-up-29-percent-from-last-year-study-finds>

Yawn, Andrew. (2020 February 27). *As Gulf swallows Louisiana island, displaced tribe fears the future*. The American South.

<https://www.theadvertiser.com/in-depth/news/2020/02/27/isle-de-jean-charles-louisiana-climate-refugees-resettlement/2448973001/>

*Surviving Climate Change* (Washington, DC: National Geographic Society, 2013)

In this video clip, eighth-grade students share ideas about adaptation and survival in changing climates.

<https://www.nationalgeographic.org/media/surviving-climate-change/>

Bioacoustic Monitoring: A Community Approach to Protecting the Rainforest (Washington, DC: National Geographic Partners)

<https://www.nationalgeographic.org/media/bioacoustic-monitoring-community-approach-protecting-rainforest/>

*Mitigation and Adaptation: Human Stories of Hope* (Washington, DC: National Geographic Partners)

<https://www.nationalgeographic.org/media/mitigation-and-adaptation-human-stories-hope/>

*Our Different Carbon Footprints* (Washington, DC: National Geographic Society, 2013)

This video case includes students discussing their understanding of what a carbon footprint is and their responses to interview questions after the discussion.

<https://www.nationalgeographic.org/media/our-different-carbon-footprints/>

### **EDUCATOR RESOURCES:**

Louisiana Marine Education Resources (Louisiana Sea Grant)

<http://www.laseagrant.org/education/>

Global Warming Demonstration (NASA)

<https://www.jpl.nasa.gov/edu/teach/activity/global-warming-demonstration/>