

## High School Modern History of Hawai‘i Inquiry

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# Was the economic benefit of the sugar industry worth the environmental cost?



STAR-ADVERTISER/ AUG. 1, 2013 A worker sprays pesticides in the Hawaiian Commercial & Sugar Company (HC&S) sugarcane field on Maui.

### Supporting Questions

1. What was the sugar plantation system in Hawai‘i from 1835-1930?
2. What were the benefits of the sugar industry?
3. What were the long-term environmental costs of the sugar industry?

# WAS THE ECONOMIC BENEFIT OF THE SUGAR INDUSTRY WORTH THE ENVIRONMENTAL COST?

<b>C3 Framework Indicator</b>	<b>D2.Geo.5.9-12.</b> Evaluate how political and economic decisions throughout time have influenced cultural and environmental characteristics of various places and regions.
<b>Social Studies Course Standards</b>	<b>Course Standard SS.MHH.2.14.3</b> Analyze environmental changes that resulted from the plantation system
<b>Staging the Compelling Question</b>	Look at <a href="#">photos</a> of the Pacific garbage patch and discuss the impact industries can have on the environment.

Supporting Question 1
What was the sugar plantation system in Hawai'i from 1835-1930?
Formative Performance Task
Create a concept map that illustrates how the sugar plantation system was organized in Hawai'i from 1835-1930. describes
Featured Sources
<b>Source A:</b> A History of Hawai'i (2017 edition) pgs. 69-72, 73-77

Supporting Question 2
What were the benefits of the sugar industry?
Formative Performance Task
Create a T-Chart that describes the costs and benefits of the sugar industry in Hawai'i. .
Featured Sources
<b>Source A:</b> <a href="#">Article and links</a> on the rising sugar industry <b>Source B:</b> <a href="#">Sugar Industry growth</a>

Supporting Question 3
What were the long-term environmental costs of the sugar industry?
Formative Performance Task
Choose two of the long-term costs of the sugar industry on the environment and explain them in a paragraph.
Featured Sources
<b>Source A:</b> Video: "Stolen Waters" <b>Source B:</b> <a href="#">State of Hawai'i soil contamination study</a> pgs. 2-6 <b>Source C:</b> <a href="#">Article on Hawai'i's endangered species</a>

<b>Summative Performance Task</b>	<b>ARGUMENT</b> Was the economic benefit of the sugar industry worth the environmental cost? Construct an argument (essay, poem, poster, detailed outline, mind map) that addresses the compelling question using specific claims and relevant evidence while acknowledging competing views.
	<b>EXTENSION</b> Pick one of the following strategies to deliberate the issues discussed in a whole-class activity: Structured Academic Debate, Socratic Seminar, or Philosophical Chairs.
<b>Taking Informed Action</b>	<b>UNDERSTAND</b> Identify and describe a current environmental issue in Hawai'i related to industry (e.g., tourism, space, military as they relate to increasing amount of microplastics on the beach, accelerated rates of plant and animal extinction, Thirty Meter Telescope on Mauna Kea).
	<b>ASSESS</b> Create a list of possibilities for advocating for and educating others about a critical environmental issue in Hawai'i (e.g., social media, written petition, posters, school newspaper).
	<b>ACT</b> Choose one of the options and implement it as an individual, group or whole class project.

## Overview

## Inquiry Description

Hawai‘i is a unique place in the world. Due to its geographic isolation, many of the plants and animals of these islands are found nowhere else in the world. Hawai‘i’s exceptionality and the growing awareness of the value of place-based education are the inspirations for this inquiry.

The goal of this inquiry is to help students develop an understanding of the history of sugar industry in Hawai‘i from a human-environment interaction perspective, then apply that understanding to a contemporary context. The natural resource management paradigm has shifted from a Manifest Destiny mindset of the mid-1800s to that of stewardship. Through this inquiry students will understand the environmental changes that resulted from the establishment of the sugar industry in the mid-1800s and the lasting impact these changes continue to have today.

Sugar planters took advantage of changing land ownership laws, opportunities on the continent (the 1848 California Gold Rush, Civil War) and Hawai‘i’s open immigration policy to clear land of its native flora and divert water to support their sugar industry. The formative performance tasks will help students understand the issue so they can answer the supporting questions, then create an evidence-based argument to answer the compelling question.

Ultimately, this inquiry challenges students to champion a solution to a current environmental crisis linked to an industry that Hawai‘i faces today, such as the increase in microplastics in the ocean, rising ocean levels, increasing numbers of invasive species, and weighing the importance of preserving culturally significant sites against the wants of the general public.

Note: This inquiry is expected to take approximately 5 50-minute class periods. The inquiry time frame may be adjusted if teachers think their students need additional instruction. Teachers are encouraged to adapt the inquiries in order to meet the needs and interests of their particular students. Lessons can be modified as necessary to accommodate individualized education programs (IEPs), Section 504 Plans and English language learners.

A collaboration between the Hawai‘i State Department of Education, the University Laboratory Charter School, the University of Hawai‘i at Mānoa, and the Hawai‘i Geographic Alliance made this inquiry possible.

## Structure of the Inquiry

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In addressing the compelling question, “Was the economic benefit of the sugar industry worth the environmental cost?” students work through the supporting questions, formative tasks and featured sources in order to construct an evidence-based argument that acknowledges competing views. The student will then be encouraged to investigate a current environment-industry issue and become an advocate.

### Staging the Compelling Question

The purpose of this activity is to enable students to make a contemporary connection to the compelling question. By examining the [photos](#), students should be able to start to think about the far-reaching environmental impact that industries can have. The photos of the Great Pacific Garbage Patch are accompanied by a set of questions that can be used either as class discussion questions or written short answers.

### Supporting Question 1

Supporting Question 1, “What was the sugar plantation system in Hawai‘i from 1835-1930,” establishes students’ foundational knowledge of Hawai‘i’s plantation history. The formative task asks students to complete a [graphic organizer](#) that summarizes the beginnings of Hawai‘i’s plantation history.

Featured Source A is taken from the most recent edition (2017) of *A History of Hawai‘i*. The review questions at the end of the sections will help students glean key points, which they can transfer to a graphic organizer.

### Supporting Question 2

Supporting Question 2 asks students to list the economic benefits of the sugar industry. By 1830 the ‘iliahi (sandalwood) trade collapsed as deforestation eliminated the supply and competition drove down prices, leaving the kingdom in economic straits. The sugar industry revitalized the economy and allowed Hawai‘i to once again engage in international trade.

[Featured Source A](#) contains a brief timeline of sugar in Hawai‘i, including a short explanation of the impact that the Reciprocity Treaty of 1875 had on the growth of the industry. Students can read through the timeline and evaluate the extent of the industry’s success by discussing with a partner or group and taking notes, or by writing a few sentences individually that describe the growth of the industry.

[Featured Source B](#) is a page from the Evening Bulletin Industrial Edition from 1909. Students can assess the increase in production from 1837 to 1907 by analyzing the numbers on the charts in the bulletin and writing a short response that describes the changes they see.

After evaluating the two sources, students can combine their findings and write a full paragraph that describes the growth of the sugar industry after the ‘iliahi (sandalwood) trade collapsed and the Reciprocity Treaty was promulgated.

### Supporting Question 3

Students will examine a few of the long-lasting effects of the plantations with the third supporting question, “What were the long-term environmental costs of the sugar industry?” When the plantations closed permanently the land, for the most part, was not allowed to return to its natural state. In place of plantations one will generally find residential developments, diversified agriculture and industrial ventures. The sugar plantations impacted the physical environment of Hawai‘i in many direct and indirect ways. For purposes of this inquiry students will focus on three: water, soil and animals.

[Featured Source A](#) is a video produced by Nā Maka O Ka ‘Āina on the impact of water diversion on Waiāhole Valley and the resilience of nature when some of the water was returned. The link here is a trailer only. Teachers can find the video at the [Nā Maka O Ka ‘Āina website](#) or at a local library. The copyright grants classroom viewing for educational institutions only.

The video gives a small window into the intimate relationship that Native Hawaiians have with their environment. As they watch the video, students can take their own notes focusing on the impact that the diversion of water had on the ecosystem in Waiāhole Valley, which can be transferred to a graphic organizer of student’s or teacher’s choice. An extension activity could be a field trip to Waiāhole or Papahana Kuaola in Ha‘ikū (Kāne‘ohe) to see and feel the water there.

[Featured Source B](#) is a Hawai‘i Department of Health summary of the use of toxins by the sugar industry and other agencies as well. Students can analyze the department’s findings on where and what kinds of contamination occurred and include their analysis on the graphic organizer. An extension could be a discussion on the types of chemical cleaning agents, herbicides, pesticides, sunscreens that students have at home and whether or not there are alternatives that are safer for the environment.

[Featured Source C](#) is an article by the National Wildlife Federation on Hawai‘i’s critically endangered species. Students will learn how large-scale sugar and pineapple plantations from mid-1800 to mid-1900 were a major cause of habitat loss when they cleared lowland forests. Students will also read about invasive species and about efforts to slow or reverse the rate of extinction. A possible extension activity could be a visit to Bishop Museum to view some extinct species.

### Summative Performance Task

At this point in the inquiry, students have examined why sugar plantations became established in Hawai‘i, and some ways that the industry impacted the environment. Students should be able to demonstrate their understanding and use evidence from multiple sources to support their claims. In this task, students will create an evidence-based argument in the form of an essay, poem, poster, detailed outline, or mind map that addresses the compelling question, “Was the economic benefit of the sugar industry worth the environmental cost?”

Students can then Take Informed Action by identifying and explaining current environmental issues in Hawai‘i such as the increasing amount of microplastics that have entered the food chain, accelerated rates of plant and animal extinction, or the ongoing conflict over water rights on all islands.

Students can advocate for one or more of these issues by educating others about a critical environmental issues by launching a social media campaign, create a written or online petition, create posters to display at school or write an article in the school newspaper. Students can engage in one of these activities individually, in groups or as a whole class.