

Human Impacts and Solutions

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WHAT'S COVERED

In this lesson, we will cover the topic of human impacts on the environment and solutions to those impacts. We will discuss the connections and links between impacts and their sources, and how a single human activity can be the cause of multiple negative environmental issues. We will discuss the core causes of these problems and explore broad solutions that can address these challenges. Specifically, this lesson will cover the following:

1. Human Impacts on the Environment

Human activities can have a range of environmental impacts. These impacts include the following:

- Climate change
- Water and air pollution
- Deforestation
- Habitat fragmentation
- Overharvesting, overexploitation, and endangerment of species
- Depletion of nonrenewable resources

All of these impacts are exacerbated by human population growth, and any negative impacts on ecosystem health end up negatively affecting humans as well.

2. Connections Between Impacts and Their Sources

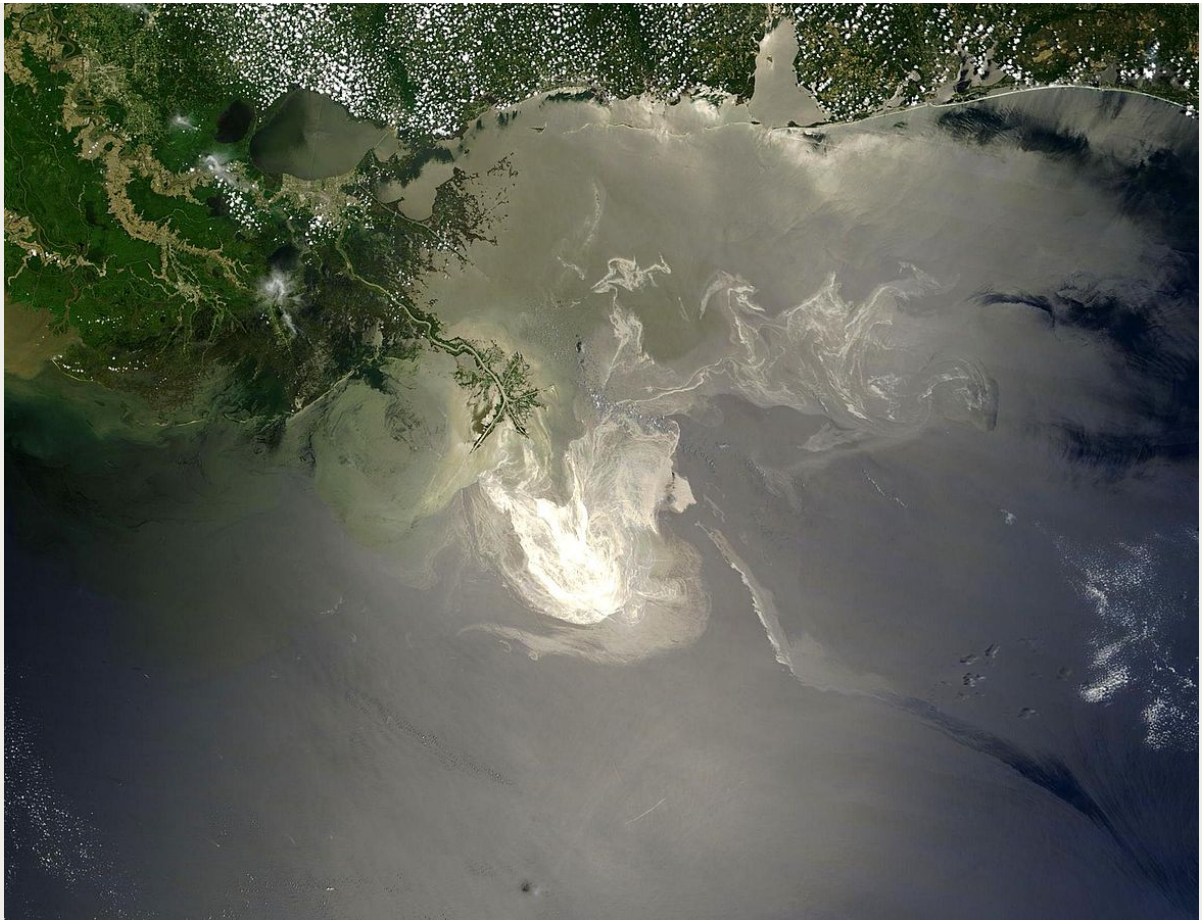
A single human activity can have a wide range of environmental impacts. It can create a web of problems that spring from a single source. There are many connections that can be made, but the scenarios in the table below highlight a few significant ones.

Connection	Description
Agriculture ↓	

Land Use ↓ Habitat Fragmentation ↓ Endangerment	Agriculture creates land use changes as natural areas are converted to cropland or space for grazing. These land use changes can lead to deforestation and habitat fragmentation as more and more natural forests are cut down for agriculture. Habitat fragmentation eventually leads to endangerment of species and loss of biodiversity.
Urban Development ↓ Waste ↓ Water Pollution ↓ Damaged Ecosystem	Urban development produces large amounts of waste, which increases water pollution and eventually results in damaged ecosystem health.
Fossil Fuels ↓ Air Pollution ↓ Climate Change ↓ Global Weather	Burning fossil fuels increases air pollution and greenhouse gases in the atmosphere, which leads to climate change. Climate change results in shifts in global weather patterns, which eventually affect every living thing on Earth.

IN CONTEXT

A real-world example of the interconnectedness of these types of impacts is the Deepwater Horizon oil spill. An estimated 210 million gallons of oil was released into the Gulf of Mexico because of the spill. The oil was highly damaging to thousands of species in the area, killing record numbers in a short period of time.



The spill resulted in the decline of species populations in the area, and this could lead to eventual species endangerment. The effects of such biodiversity loss have weakened the ecosystems in the Gulf of Mexico, and because fish populations are lower, it has impacted fishermen and the local economy.

Because of human consumption of fossil fuels, large quantities of greenhouse gases have been released into the atmosphere. The resulting greenhouse effect has increased and raised the overall global temperature. The increased temperature has in turn caused many glaciers and polar ice caps to melt and recede.

➞ **EXAMPLE** The photo below is of the largest glacier ice cap in Europe, located in Iceland. In just 41 years, it has receded 1.2 miles because of global warming. The shrinking of ice caps like this one means that there is less fresh water available for human consumption.



3. Core Causes of Environmental Problems

A single human activity can have a wide range of effects and negative impacts. It is therefore important to note some particularly significant activities that negatively affect the environment. These include the following:

- The use of pesticides and fertilizer, which causes runoffs and water pollution, eventually impacts human and ecosystem health
- Automobile use
- Transportation
- Power plants that generate air pollution and contribute to respiratory problems and global climate change
- Household waste
- Industrial waste
- Inefficient land use

Some of these activities are not inherently problematic but each can cause problems when carried out in a large scale. This is especially relevant when talking about nonrenewable resources, such as land and water.

4. Solutions to Environmental Problems

Because of the interconnected nature of these problems, finding the right solutions can have equally far-reaching effects.

- Controlling population growth is a prime example because overpopulation exacerbates almost all environmental issues.
- Using alternative or renewable energy, as opposed to fossil fuels, can have a wide range of positive effects and reduce environmental impacts.

- It is more impactful to focus on general ecosystem support rather than trying to save individual species.
- Green building can have a host of positive effects because the building industry currently has a large set of negative impacts. Green chemistry and other green initiatives are beneficial because they take into account multiple environmental impacts at once.
- Effective policymaking can have broad positive impacts if the policies are well thought out.



SUMMARY

In this lesson, we learned about **human activities and their negative environmental impacts**. We learned about the **interconnection between those impacts and their sources** and how a single human activity can have a wide range of environmental impacts. We learned about some of the **core causes of those problems**, and discussed broad **solutions** that address the interconnected nature of the issues.

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