



Fire Danger on the Rise

1 In 2018, more than 8,000 wildfires tore through California, burning an area larger than the state of Delaware. Over the past five decades, forest fires have increased by almost 800 percent. Why does the risk of wildfires keep growing?

Climate Change

2 Climate change plays a big part. Earth is getting warmer because of human activity like burning oil and gas. Burning oil and gas produces greenhouse gases. These gases trap heat in Earth's atmosphere. As a result, the average global temperature has risen. It is now about 1.3° Fahrenheit (0.74° C) higher than it was 100 years ago. Hot weather dries out plants and trees, which become fuel for fires. Dried out plants and trees can go up in flames in an instant.

3 Climate change **contributes** to wildfires in other ways, too. Fires tend to happen in warmer months. Because the climate is warming, the fire season is longer. In California, climate change has also led to stronger winds. These strong winds can quickly spread wildfires.

DIRECTIONS

Read the text, and complete the activity on page 3.

contributes: helps cause an event

More Brush and Small Trees

4 Another reason there are more wildfires is the build up of brush and small trees in forests. These are fuel for wildfires. Hundreds of years ago, Native Americans managed forests with what is now called "controlled burning." Later, the Forest Service began using controlled burning to prevent wildfires. Controlled burning involves setting small fires to clear trees and brush. But controlled burning cannot be used as often or in as many places as needed. This is because the Forest Service must make sure there are no high winds to spread the fire. It must also make sure that smoke from fires won't drift toward nearby towns. Controlled burning also costs money. And the Forest Service has less money to spend on fire prevention because it spends more and more money on putting out fires. Without controlled burning, more brush and small trees grow. And brush and small trees are fuel for wildfires.



Homes in Wildfire Zones

5 We're also seeing more wildfires because more people live in wildfire zones. This is a problem in a couple of ways. First, humans cause the majority of wildfires. Those could be campfires that don't go out, fireworks, or sparks from car engines. So, as more people move into wildfire zones, more fires start. Second, firefighters may have more trouble fighting and preventing wildfires with people living nearby. It's hard to do controlled burns near someone's house. And firefighters use different **methods** to protect houses and other buildings than to stop fires from spreading through woods.

methods: ways of doing something

Holding Back the Flames

6 There are many different causes for the increase in wildfires. So we may need to try many different things to **resolve** it. If we learn to depend less on fuels like oil and gas, we might be able to slow climate change. If we manage more forests with controlled burns, we stop wildfires from spreading quickly. We might help firefighters prevent and stop fires if we change the rules for building houses in wildfire zones. Even the actions we take while camping or enjoying the outdoors can prevent wildfires. Fortunately, there are many ways to be part of a solution.

resolve: to solve or find a solution for



Matching Causes and Effects

Use text evidence to determine which cause and effect statements are connected. Then, draw a line from the cause on the left to its effect on the right.

Cause

The Forest Service does not use controlled burning.

Effect

Earth's climate has gotten warmer.

Earth's climate has gotten warmer.

Brush and trees build up in forests.

Greenhouse gases trap heat in Earth's atmosphere.

Firefighters struggle to put out fires near people's homes.

People move into wildfire zones.

The wildfire season has gotten longer.



Oceans Under Fire

Fire damage doesn't stop at the ocean's edge.

- 1 If you were to name a place on Earth that is safe from wildfires, you'd probably name the oceans, right? Well, here's some bad news—even oceans suffer from wildfires. But how can fires affect a huge body of water that doesn't even burn?

Ashes and Algae

- 2 Fires leave behind ash, which can travel far on winds and in rivers and streams. Once ash hits the ocean, it mixes in. Tiny ocean plants called algae then feed on the nutrients and minerals in the ash. This might not sound so bad. But when algae grows and covers a large area, it can produce poisons that harm people and animals. It can also create “dead zones” in the water. These are places where most ocean plants and animals cannot live.

A Poisonous Relationship

- 3 Wildfire ashes may also contain chemicals that are bad for ocean life. Where do these chemicals in ash come from? When a fire spreads to areas where people live, it can burn buildings. And these buildings are often made with materials that contain chemicals. If the ashes from these building materials end up in the ocean, the chemicals in them can poison ocean life.
- 4 Fighting fires can also harm the oceans. Helicopters spray some areas with fire retardants. These chemicals slow the spread of flames. Eventually, fire retardants wash away with rain. Some enter the soil or end up in the rivers and the oceans. But how safe are these chemicals? One common fire retardant used in fighting wildfires contains a chemical that feeds ocean algae. And we already know the problems that ocean algae can cause. Scientists also studied fire retardants' effects on salmon. They learned that some fire retardants are **lethal** to young salmon.

DIRECTIONS

Read the text, and complete the activity on page 6.



5 What about the fire extinguisher foams that firefighters use?

Spraying these foams over burning forests or buildings puts out the flames. But afterwards, high amounts of chemicals in these foams appear in rivers and lakes. The chemicals can poison fish and other wildlife.

Melting Ice Sheets

6 A wildfire can also melt Arctic ice, causing sea levels to rise.

Wildfire smoke contains tiny black particles called soot. When soot lands on an ice sheet, it darkens that ice. The darker the ice gets, the more heat it **absorbs** from the sun. So soot-covered ice is more likely to melt than clean ice.

absorbs: soaks up

Tame the Flame

7 But are wildfires always bad news? Wildfires have been shaping the oceans for millions of years. In fact, wildfire ash is **essential** to deliver nutrients and minerals from land to the oceans. These nutrients and minerals help feed ocean life.

essential: necessary

8 So what's the problem? There are more wildfires now than ever. That's because climate change has caused more droughts. As a result, wildfire seasons in many areas are longer than in past decades. Taking actions against climate change can help shorten the wildfire season. Scientists can help even more by developing safer fire retardants and building materials. And then? The oceans won't be quite so much under fire.



Understanding How Ideas Fit Together

The statements below are causes and effects from the text. Cut out your assigned statement. Then, find the classmate with a statement that connects to yours. Together, complete the sentence at the bottom of the page by combining your cause and effect statements.

Cause

Firefighters spray wildfires with fire retardants.

Effect

Algae feeds on ash.

Wildfire smoke produces soot.

Ice sheets darken and melt faster.

Wildfires burn materials containing chemicals.

Chemicals from burned materials get into oceans.

Ash from fires gets into oceans.

Algae creates zones where ocean plants and animals cannot live.

Algae grows and covers a wide area.

Fire retardant chemicals end up in ocean.

_____ happened because _____.