

# Planting kelp forests may stem alarming rise in ocean CO<sub>2</sub> levels

By Mongabay, adapted by Newsela staff on 10.01.19

Word Count **740**

Level **840L**



Kelp forests thrive in shallow seas and are home to numerous species. Photo by: Douglas Klug/Getty Images

For a long time, scientists have argued that growing forests on land could help fight climate change. But what about growing forests under the sea? Underwater forests would not be made of trees, of course. Instead, they would be made of kelp. This giant, brown seaweed lives in shallow, warm seas. It provides a habitat for many sea creatures.

Climate change is caused by increase in carbon dioxide (CO<sub>2</sub>) levels in the atmosphere, the jacket of gases that surrounds the Earth. The rise in CO<sub>2</sub> is caused by certain human activities. They include burning fossil fuels such as coal and chopping down forests. The CO<sub>2</sub> acts like a blanket, trapping heat below the atmosphere and causing the planet to warm up. Carbon dioxide doesn't only affect the air. The ocean also absorbs the excess CO<sub>2</sub> from the atmosphere and becomes more acidic. This is known as ocean acidification.

Today, the ocean is more acidic than it used to be. This has affected marine life. When the acidity of seawater changes too quickly, the animals can suffer. For example, newborn oysters are having a hard time developing in the more acidic waters, says Jan Newton. She is the co-director of The

Washington Ocean Acidification Center. She says that certain types of plankton are also suffering. Some plankton even have holes in their shells.

If the ocean becomes too acidic, organisms at the bottom of the food web could die out. This could affect larger fish and other ocean animals. Ocean acidification could eventually cause problems for fisheries that millions of people depend on for food.

### **Experiment Will Last 5 Years**

Luckily, scientists think kelp forests might be able to help. Plants on land help fight climate change by absorbing carbon dioxide. They use CO<sub>2</sub> for food. Kelp does the same thing in the water. Scientists think kelp forests could help fight growing acidity in the ocean. They will test this theory with a kelp forest study in the waters near Washington State, in an area called the Puget Sound. The experiment will take five years.

The scientists want to know if kelp absorbs enough CO<sub>2</sub> to make the ocean less acidic. The Washington Ocean Acidification Center is one of the organizations involved in the experiment. The scientists will grow kelp forests from scratch to test how effective kelp actually is at fighting ocean acidification.

The water in Puget Sound is a good place to run the experiment. It is naturally more acidic than many other bodies of water. The water gives scientists an idea of what the ocean could look like in the future. It's also a good testing ground to see if the kelp forests can raise the pH of the surrounding water back to a more normal level. In chemistry, pH is a scale used to determine how acidic or basic something is. A lower pH is more acidic. A higher pH is less acidic. To date, the average pH of the ocean has fallen. It has dropped from 8.2 to 8.1. That change might seem small, but it has had a big effect.

The team will build the kelp forests by stringing small kelp plants, or seedlings, between two floating rafts. The kelp will grow downward into the water. This will create an upside-down forest.

### **Dramatic Growth Of Kelp**

The kelp can grow up to 18 inches a day. Scientists will gather constant data from the water in and around the kelp forest. Eventually, the kelp will grow to be several meters long. That's the time the researchers will have to remove it.

Newton says that the key is to allow the kelp to absorb the CO<sub>2</sub> and then remove it. If the kelp is not removed, the CO<sub>2</sub> will be released back into the water as the kelp breaks down. The team members haven't yet decided what to do with the kelp once they remove it. The possibilities include selling it as food or compost.

The kelp forests will do more than fight ocean acidification. They will also create a large area of seaweed habitat. The area could be used by fish and other marine animals, explains Joth Davis. He is the lead scientist at the Puget Sound Restoration Fund. This is another organization involved in the experiment.

The oceans will continue to change in the future. The study will help scientists understand how kelp forests could protect marine life during this time of change.

## Quiz

1 According to the section "Experiment Will Last 5 Years," how could kelp help with ocean acidification?

- (A) It could take out the CO<sub>2</sub> from the ocean, making it more acidic.
- (B) It could take out the CO<sub>2</sub> from the ocean, making it less acidic.
- (C) It could bring more CO<sub>2</sub> into the ocean, making it more acidic.
- (D) It could bring more CO<sub>2</sub> into the ocean, making it less acidic.

2 What is the relationship between ocean acidification and pH?

- (A) Ocean acidification causes the ocean to be more acidic and the pH to rise.
- (B) Ocean acidification causes the ocean to be less acidic and the pH to rise.
- (C) Ocean acidification causes the ocean to be more acidic and the pH to drop.
- (D) Ocean acidification causes the ocean to be less acidic and the pH to drop.

3 The phrase "climate change" is essential to understanding what is happening in the oceans.

Which sentence from the article explains what "climate change" means?

- (A) For a long time, scientists have argued that growing forests on land could help fight climate change.
- (B) The CO<sub>2</sub> acts like a blanket, trapping heat below the atmosphere and causing the planet to warm up.
- (C) Plants on land help fight climate change by absorbing carbon dioxide.
- (D) The study will help scientists understand how kelp forests could protect marine life during this time of change.

4 Read the following paragraph from the introduction [paragraphs 1-4].

*Today, the ocean is more acidic than it used to be. This has affected marine life. When the acidity of seawater changes too quickly, the animals can suffer. For example, newborn oysters are having a hard time developing in the more acidic waters, says Jan Newton. She is the co-director of The Washington Ocean Acidification Center. She says that certain types of plankton are also suffering. Some plankton even have holes in their shells.*

Which phrase from the paragraph helps the reader understand the meaning of "suffer"?

- (A) more acidic
- (B) changes too quickly
- (C) having a hard time
- (D) developing