

# Climate change raising the oceans, making them warmer, new report says

By Los Angeles Times, adapted by Newsela staff on 10.10.19

Word Count **836**

Level **830L**



Image 1. The town of Pacifica, California, just south of San Francisco, is ground zero for the issue of coastal erosion. On January 20, 2019, the combination of ocean surge and a king tide caused high waves. Some homes and apartment buildings were destroyed. Photo by: Carolyn Cole/Los Angeles Times/TNS

The planet is in hot water. Warmer temperatures are melting ice and heating up oceans. That means trouble for everyone.

A new United Nations (U.N.) report describes the problems warmer oceans will cause. It warns that people must make changes quickly.

## Oceans In Trouble

Over the next 100 years, climate change will make the oceans warmer and more acidic, which makes it harder for sea life to thrive. Melting ice sheets will drive up sea levels quickly. Warmer oceans will harm delicate ecosystems. The total number of animals in the sea could drop as much as 15 percent, according to the U.N. Intergovernmental Panel on Climate Change (IPCC) report.

"The oceans and ice are in trouble, so we're all in trouble," said Michael Oppenheimer. He's a climate scientist at Princeton University in New Jersey. Oppenheimer helped write the report.

The report shows how important it is to reduce greenhouse gas emissions in future decades. The effort will determine how much trouble the world faces.

It's "the difference between an unmanageable problem and one that humans can deal with," Oppenheimer said.

## A Heavy Cost

Carbon dioxide is a greenhouse gas. It's created by burning fossil fuels, such as coal and oil, for power. When too much carbon is released, the Earth's atmosphere traps more and more heat.

The study on oceans and ice, released September 25, comes close on the heels of the U.N. Climate Action Summit in New York City, which failed to bring about promises from the countries that cause the most pollution. Yet the report highlights just how troublesome delaying action will be.

Thus far, the oceans have been a hero of our warming world. They have soaked up about a quarter of the carbon dioxide humans have pumped into the air since the industrial revolution. This time period is when factories started burning large amounts of coal to create power. The oceans also soaked up 90 percent of the resulting heat.

"But it can't keep up," said Ko Barrett, who studies the oceans for the National Oceanic and Atmospheric Administration. Barrett is also an IPCC leader.

The report shows climate change has already started to alter the chemistry and circulation of the oceans. It also shows its heavy cost on ecosystems in the ocean.

People who live on the coast are already feeling the effects, too. Rising seas are the biggest problem. By 2050, it's expected that billions of people will live on the coasts.

Sea levels have risen in the last 100 years, mostly due to water coming from mountains. Mountain glaciers have been melting. The melting has happened in Alaska. It also happened in the Andes Mountains in South America.

Now, however, large ice sheets in Greenland and Antarctica are melting. It's causing sea levels to rise faster than ever.

Since 2006, sea levels have risen 0.14 inches every year. That's more than twice as fast as the previous 100 years.

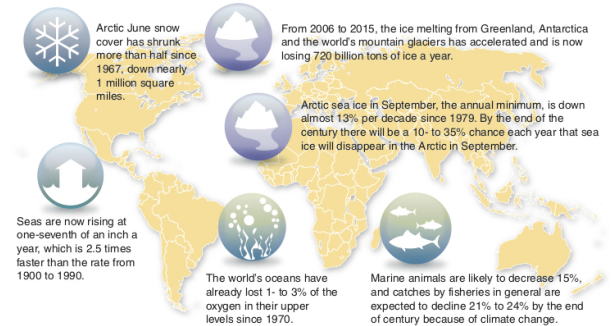
The big question is what happens next.

## Rising Seas

New studies have been done since the last IPCC assessment in 2014. The findings caused the authors of this year's study to change their estimates of future sea levels. The new estimates are

### Oceans rising faster, ice melting more

Due to climate change, the world's oceans are getting warmer, rising higher, losing oxygen and becoming more acidic at an ever-faster pace and melting even more ice and snow



Source: AP  
Graphic: Staff, Tribune News Service

higher.

One estimate showed what could happen if countries lower greenhouse gases quickly. Compared to 2000, sea levels will increase about 1 1/2 feet by 2100. The levels would rise 3 feet by 2300.

That will present many challenges. However, Oppenhemier said the changes would happen more slowly. It would give people more time to plan.

Another estimate shows what happens if countries fail to curb emissions soon. This estimate showed a sea level rise of about 3 feet by 2100. The sea level would rise much more after that.

In the worst-case situation parts of the Antarctic ice sheet start to break apart. The sea level could rise as much as 17 feet by 2300. That would probably be too fast for people to adjust, Oppenheimer said.

Regine Hock studies glaciers at the University of Alaska. She helped write the U.N. report. Hock said there are signs that melting ice will cause many rapid changes.

Rising sea levels will cause problems on the coasts. People living on the ocean will face increasingly destructive flooding during storms and high tides.

By 2050, the level of flooding that happened every 100 years will happen every year, the report said. The study also said hurricanes will become worse.

### **Fish Populations**

The assessment also looked at how climate change is affecting fish populations. Warming waters have put many fish and other sea life on the move. Some sea life can't relocate, though. Corals, for example, could be lost.

The report authors called on governments to protect ecosystems. It emphasized the need to slash greenhouse gas emissions.

"What's at stake is the health of ecosystems," Barrett said. "And — importantly — the world we leave our children."

## Quiz

1 Read the following statements.

1. *Climate change is causing sea levels to rise.*
2. *Countries must take action to address climate change.*
3. *Climate change is caused by greenhouse gas emissions.*
4. *Warming waters have forced fish and other sea life to find new homes.*

Which two statements are main ideas of the article?

- (A) 1 and 2
- (B) 1 and 3
- (C) 2 and 4
- (D) 3 and 4

2 Read the paragraph from the section "Oceans In Trouble."

*Over the next 100 years, climate change will make the oceans warmer and more acidic, which makes it harder for sea life to thrive. Melting ice sheets will drive up sea levels quickly. Warmer oceans will harm delicate ecosystems. The total number of animals in the sea could drop as much as 15 percent, according to the U.N. Intergovernmental Panel on Climate Change (IPCC) report.*

Which statement summarizes the paragraph?

- (A) Ocean ecosystems are delicate and easily damaged.
- (B) The U.N. met to discuss climate change in New York City.
- (C) Rising temperatures could negatively affect ocean ecosystems.
- (D) Rising sea levels are causing climate change to get worse.

3 According to the section "Rising Seas," how can countries prevent sea levels from rising drastically?

- (A) They need to lower greenhouse gas emissions quickly.
- (B) They need to prevent people from moving to the coasts.
- (C) They need to prepare for more hurricanes and flooding.
- (D) They need to replace melted glaciers with frozen ones.

4 What is the relationship between climate change and ice sheets in Greenland and Antarctica?

- (A) Climate change is causing the ice sheets to form new glaciers.
- (B) Climate change is causing the ice sheets to float to new locations.
- (C) Climate change is causing the ice sheets to freeze in different shapes.
- (D) Climate change is causing the ice sheets to melt and affect sea levels.