

# How The Changing Climate Affects Sea Level Rise

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*From DR Martin Sharp courtesy SMCC Webinar: Sea Level Rise and Climate Change*

Sea levels are already rising. One tends to think of impacts in the Third World but, between 1969 and 2010, Prince Edward Island lost 20 square kilometres. According to Dr. Adam Fenech, Director of the Climate Lab at the University of Prince Edward Island, close to a thousand PEI homes, 17 lighthouses (one of which is already half in the water) and a number of wind turbines could be lost by 2100. A new webinar from the Science Media Centre of Canada discussed an important factor not included in this calculation. The changing climate affects sea level rise.

## Changing Climate Affects Sea Level Rise

Though many talk of a two metre sea level rise by 2100, this really depends upon global emissions.

At COP 21 in Paris, most of the world accepted the goal of transitioning away from fossil fuels, and to 0 emissions, by 2080. If climate deniers such as the current U.S. administration continue to have their way, we could actually see emissions more than double compared to 2014 levels.

“There is a very significant risk under a high emissions scenario. ... (When you consider recent research) ... Numbers like 90 to 240 centimetres (roughly 3 to 8 feet) to are now within the realm of probability,” said Dr. Robert Kopp, from the Department of Earth and Planetary Sciences at Rutgers University.

## Causes of Sea Level Rise

“Sea levels have been rising, give or take, 50 centimetres over the past 110 to 120 years of the record ... which means that how big a storm surge needs to be, to exceed the flood line, is getting smaller and smaller,” explained Dr. Natacha Bernier, from the Atmospheric Science and Technology branch of Environment and Climate Change Canada.

Rising global temperatures accelerate this.

“If we think about sea level change on average around the world, there is basically three factors we have to worry about. One is ice melting, from land. The second is the ocean warming and therefore expanding in volume. The third, a smaller factor, is changes in the amount of water that is stored on land ... ,” said Dr. Martin Sharp, from the Department of Earth and Atmospheric Sciences at the University of Alberta.

## Millions Potentially At Risk

He added, “There is a huge concentration of people in areas which, because of their elevation, are potentially vulnerable to rising sea levels... If we factor in the additional sea level rise that we get from things like storm surges and tsunamis, the situation is significantly more serious ... And it raises the obvious question that in the event of a combination of sea level rise and an extreme event, like a storm surge or a tsunami, where will all these displaced people go? How will we manage their movement? And how will we accommodate them in the places where they end up? ”

Cyclone Mora recently displaced 1.5 million people in Sri Lanka and Bangladesh.

The UPCC (Intergovernmental Panel on Climate Change ) estimates that 272 million people in SouthEast Asia, alone, are threatened by flooding.

“The areas that are particularly vulnerable are the island states of the Pacific, which are not particularly heavily populated, and the mega-deltas of South and Southeast Asia, which are extremely heavily populated,” said Sharp.

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