

Module: Text TypologyLevel: 1st Year License M.D (All the Groups)

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Text n° 03:

Sea Level Rise

Scientific research indicates sea levels worldwide have been rising at a rate of 0.14 inches (3.5 millimeters) per year since the early 1990s. The trend, linked to global warming, puts thousands of coastal cities, and even whole islands at risk of being claimed by the ocean.

A. Core samples, tide gauge readings, and, most recently, satellite measurements tell us that over the past century, the Global Mean Sea Level (G.M.S.L) has risen by 4 to 8 inches (10 to 20 centimeters). However, the annual rate of rise over the past 20 years has been 0.13 inches (3.2 millimeters) a year, roughly twice the average speed of the preceding 80 years.

B. Over the past century, the burning of fossil fuels and other human and natural activities has released enormous amounts of heat-trapping gases into the atmosphere. These emissions have caused the Earth's surface temperature to rise, and the oceans absorb about 80 percent of this additional heat.

The rise in sea levels is linked to three primary factors, all induced by this ongoing global climate change:



- Thermal expansion: When water heats up, it expands. About half of the past century's rise in sea level is attributable to warmer oceans simply occupying more space.

- Melting of glaciers and polar ice caps: Large ice formations, like glaciers and the polar ice caps, naturally melt back a bit each summer. But in the winter, snows, made primarily from evaporated seawater, are generally sufficient to balance out the melting. Recently, though, persistently higher temperatures caused by global warming have led to greater-than-average summer melting as well as diminished snowfall due to later winters and earlier springs. This imbalance results in a significant net gain in runoff versus evaporation for the ocean, causing sea levels to rise.

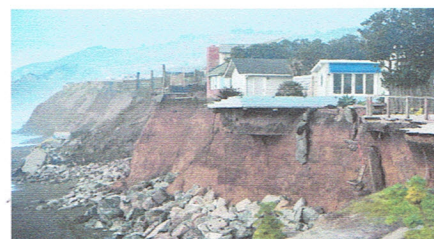
- Ice loss from Greenland and West Antarctica: As with glaciers and the ice caps, increased heats is causing the massive ice sheets that cover Greenland and Antarctica to melt at an accelerated pace.

Scientists also believe meltwater from above and seawater from below is seeping beneath Greenland's and West Antarctica's ice sheets, effectively lubricating ice streams and causing them to move more quickly into the sea. Moreover, higher sea temperatures are causing the massive ice shelves that extend out from Antarctica to melt from below, weaken, and break off.

C. When sea levels rise rapidly, as they have been doing, even a small increase can have devastating effects on coastal habitats. As seawater reaches farther inland, it can cause destructive erosion, flooding of wetlands, contamination of aquifers and agricultural soils, and lost habitat for fish, birds, and plants.

When large storms hit land, higher sea levels mean bigger, more powerful storms surges that can strip away everything in their path. In addition, hundreds of millions of people live in areas that will become increasingly vulnerable to flooding. Higher sea levels would force them to abandon their homes and relocate. Low-lying islands could be submerged completely.

D. Most predictions say the warming of the planet will continue and likely will accelerate. Oceans will likely continue to rise as well, but predicting the amount is an inexact science. A recent study says we can expect the oceans to rise between 2.5 and 6.5 feet (0.8 and 2meters) by 2100, enough to swamp many of the cities along U.S East Coast. More dire estimates, including a complete meltdown of the Greenland ice sheet, push sea level rise to 23 feet (7 meters), enough to submerge London and Los Angeles.



Questions:

1. Match each paragraph (A,B,C,D) with its heading: (2pts)

Paragraphs	Headings
A	Projections of sea level rise by the end of 21 st Century.
B	Impact of sea level on coastal areas and society.
C	How sea level rise is measured and studied.
D	Causes of sea level rise.

2. Are these statements "True" or "False"? (Justify from the text)

- The average rate of sea-level rise has approximately doubled since the 1990s.
- There is no correlation between global warming and the rise in sea levels.
- Much of the heat trapped by carbon dioxide in the atmosphere is absorbed by the oceans.
- Snowfall in Polar Regions has contributed to the rise in sea levels.
- A rise in sea level will have a negative impact on our supply of fresh water.

3. Complete these sentences:

- Global warming is caused by.....
- If the oceans didn't absorb the additional heat.....
- Snowfall has decreased because.....
- In Antarctica, melt water from above is mixing with seawater causing.....
- A rise in sea level will have a negative impact not only.....
- The rise in water levels is especially dangerous for small island nations and.....

4. Choose the correct answer: (2pts)

- a. "When heated up, water expands". The underlined word means:

*Contracts *Turns into vapour *Increases in volume

- b. "heat-trapping" means:

*Releasing heat *Absorbing heat *Burning *Causing explosions

5. Match each word with its meaning:

Words	Meaning
1.Vaporization	a. A device for measuring the change in sea levels.
2.Erosion	b. An underground layer of water.
3.Core sample	c. The process by which soil and rock are removed from the Earth's surface by water or wind.
4.Tide gauge	d. Water flow that occurs when rain water is not absorbed by the ground on which it falls and so flows on the surface.
5.Flood	e. A section of a natural substance obtained by drilling into rock or sediment to test its properties.
6.Glacier	f. The covering of normally dry land by water.
7.Runoff	g. The process by which liquid water turns into vapour/gas.
8.Aquifer	h. Winds of unusual force.
9.Storm	i. A huge mass of ice over a land mass.

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