



# **The Impact of Climate Change on Flooding in Coastal Communities in Aberdeen and Aberdeenshire**

## **QUIZ ANSWERS**

## Section 1 - Climate Change Background

1. What is the definition of climate change?

**Answer: (C)** This definition is shortened version of IPCC definition found in this report. A different definition can be found by United Nations Framework Convention on Climate Change (UNFCCC), which is also located within this report

**Source:** *IPCC Climate Change 2007 Synthesis Report*

2. What does IPCC stand for and what does it do?

**Answer: (A)** IPCC reviews and assesses the most recent scientific, technical and socio-economic information produced worldwide relevant to the understanding of climate change. IPCC does not do any research and the work by scientists is voluntary. IPCC is an intergovernmental body and is open to all member countries of the UN and WMO

**Source:** <http://www.ipcc.ch>

3. Out of the examples below choose the least relevant indicator for accessing climate change:

**Answer: (C)** Annual cloud cover does not indicate climate change as annual cloud cover will vary greatly and will be nearly impossible to monitor on any scientific basis. There will be little or no patterns in annual cloud cover that can be linked to climate change

**Source:** [http://www.ipcc.ch/pdf/presentations/20\\_years\\_of\\_IPCC\\_Workgroup](http://www.ipcc.ch/pdf/presentations/20_years_of_IPCC_Workgroup)

4. Rate of global warming has increased per decade by:

**Answer: (D)** This increase is the biggest increase in global warming per decade for the past 1000 years. In the next 200 years global temperature will have increased by 1°C.

**Source:** *Climate Change and the Visitor Economy – Challenges and Opportunities for England's northwest*

5. Greenhouse gases are a probable contributor climate change. Global greenhouse gas emissions from human activities have increased from pre-industrial time by:

**Answer: (D)** These greenhouse gas emissions can be mainly sourced to the burning and use of fossil fuels.

**Source:** *IPCC Climate Change 2007 Synthesis Report*

6. The greenhouse gas carbon dioxide CO<sub>2</sub> has increased in atmospheric levels over the last 100 years by:

**Answer: (D)** A 34% increase of carbon dioxide has been recorded due to industrial activities by humans. Accelerated rates have been observed since the 1950's

**Source:** *Climate Change and the Visitor Economy – Challenges and Opportunities for England's Northwest*

7. Scotland's annual temperature in 2080 for the summer is predicted to rise by:

**Answer: (E)** This figure was calculated by UK Climate Impact Programme and shows that climate change will affect areas, such as Scotland in the near future.

**Source:** *Government Preparing For a Changing Climate: The Scottish Government, Edinburgh 2009*

8. Scotland's growing season (spring) for plants and animals in 2080 is expected to increase by:

**Answer: (C)** This figure was calculated by UK Climate Impact Programme. This is a very interesting fact giving an indication of the influences and consequences climate change will have on plants/animals and general biodiversity. An increased period of the growing season by 20-60 is huge and is a major indicator that climate change is having an effect on natural systems.

**Source:** *Government Preparing For a Changing Climate: The Scottish Government, Edinburgh 2009*

9. Which two regions of the world below, recorded the most observed changes in physical and biological systems, caused by temperature change in 1970-2004

**Answer: (A & B)** Europe recorded the most changes in biological systems with 28115 observations (89% due to temperature change). Europe recorded 119 physical changes and North America 355. North America also recorded 422 biological observations with 92% resulting from temperature change.

**Source:** *IPCC Climate Change 2007 Synthesis Report*

## **Section 2 – Coastal Climate Change**

10. How many marine and freshwater biological changes (e.g. changes in ecosystems and habitats) were observed for the period of 1970 -2004, caused by temperature changes?

**Answer: (B)** these observations were based at sites and large areas of oceans, small islands and continents.

**Source:** *IPCC Climate Change 2007 Synthesis Report*

11. Which paragraph below best outlines the general consequences of climate change for coastal regions of the UK? Consider the following future climate change factors and the impacts they will bring when answering the question: Sea level rise, sea temperature rise, storminess and severe weather

**Answer: (A)** From information gained answering previous questions and general facts known about climate change answer (A) gives the best description. This description is very general but gives a good idea of the implications climate change brings to coastal regions of UK.

**Source:** *Implications for Ireland's Marine Environment and Resources 2005*

12. What is the predicted value of rate of increase in average sea level rise for global coastal regions by 2050? (predicted by IPCC): These are based on scientific studies done across the globe that IPCC have analyzed.

**Answer: (A)** Predicted sea level rise by the IPCC report between periods of 2000-2050.

**Source:** *Identifying Coastal Specific Vulnerabilities to Climate Change and Related Issues 2009 report*

13. In 1998 coral reefs around Asia decreased by what percentage due to increases in sea temperature and acidification?

**Answer: (D)** This drop was caused by the el Nino event of 1998. Climate change is predicted to cause an increase in these events or their severity in the future. In general increases in acidification and temperature caused by future climate change will see further decreases in coral reef population in Asia. Coral reefs are sensitive to temperature and pH.

**Source:** *Coastal zones and climate change – Stimson*

### Section 3 – UK Coastal Climate Change

14. Out of the areas listed below, which ones will be affected by climate change in the future?

**Answer: (A, B, C, And D):** All these areas are affected by climate change in some form. This emphasis how climate change will affect all areas of coast for UK and possibly Europe

**Source:** <http://www.imcore.eu>

15. Temperature in the Irish coastal seas have risen since 1950 by:

**Answer: (D)** This is a big change over such a short period of time. Due to Northern Ireland and Ireland being a small island, climate change factors like the one stated above could impact them more.

**Source:** *Identifying Coastal Specific Vulnerabilities to Climate Change and Related Issues 2009 report*

16. Highlight the two threats below - due to climate change - which will affect biodiversity for the area of Cork harbour:

**Answer: (A & C)** Destruction of habitats will decrease biodiversity, as this will decrease or remove populations of certain species in the area. Sea temperature rise will also decrease biodiversity as it can have an effect on species with sensitive habitat requirements. Increases in temperature could make the waters around the cork inhabitable for certain species.

**Source:** *Identifying Coastal Specific Vulnerabilities to Climate Change and Related Issues 2009 report*

17. Sea level rise and storminess are aspects of climate change. A possible prevention measure is tidal defences. How many people are currently protected by tidal defences in the UK?

**Answer: (C)** Currently there is 1.5 million people protected by some form of tidal defence. These tidal defence stretch for 2150 km

**Source:** *Potential Implications for Sea Level Rise for Great Britain by Anne C. Vega-Leinert and Robert J. Nicholls*

18. What Percentage of the UK population currently lives near the coast?

**Answer: (b)** There is currently 47% of the UK population that lives near the coast. This 47% translates to 28 million people in the UK living near the coast that will be affected by coastal climate change.

**Source:** *Potential Implications for Sea Level Rise for Great Britain by Anne C. Vega-Leinert and Robert J. Nicholls*

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#### **Section 4 - Aberdeen and Climate Change**

19. As the climate gets warmer, snowfall will be replaced by rainfall. Aberdeen will see reduction in average snowfall in 2080, by what percentage?

**Answer: (D)**

**Source:** *Aberdeen climate change action plan 2002*

20. Aberdeen will see reduction in average snowfall in 2080, by what percentage?

**Answer: (B)**

**Source:** *Aberdeen climate change action plan 2002*

21. Aberdeen mean annual temperature will rise by 2080:

**Answer: (D)**

**Source:** *Aberdeen climate change action plan 2002*

22. Aberdeen could see increases of 'extremely' warm days in 2080 by:

**Answer: (D)**

**Source:** *Aberdeen climate change action plan 2002*

23. Storm events and extreme sea levels could increase in frequency by 2080:

**Answer: (B)**

**Source:** *Aberdeen climate change action plan 2002*