

# IPCC Report on Climate Change 2014: Impacts, Adaptation, and Vulnerability Summary for Policymakers

## Section A: Observed Impacts, Vulnerability, & Adaptation in a Complex & Changing World

1. There is “high confidence” that many terrestrial, freshwater and marine species have shifted their geographic ranges in response to climate change. Explain the meaning of the following statement: *“While only a few recent species extinctions have been attributed as yet to climate change, natural global climate changes at rates slower than current anthropogenic climate change caused significant ecosystem shifts and species extinctions during the past millions of years.”*

2. Figure SPM.2: Part A

a. Which half of the US (east or west) shows a major contribution of climate change for rivers, lakes, floods, and/or droughts?

b. With what level of confidence is that made?

3. A-2: Adaptation experience is accumulation across regions.

a. Which area has the best plans for sea level rise?

b. Which area has an ecosystem-based adaptation plan?

c. Name at least 2 areas in which Asia is taking adaptation action.

4. Figure SPM.4: Part A

a. What part of the US did not have a statistically significant trend? What about the rest of the US?

b. Where in the world was the greatest change observed?

5. Using Figure SPM.4: Part B & C

Use these two diagrams to formulate a statement of future climates (2081-2100) in both a low & high emission scenario.

## Section B-2. Sectoral Risks and Potential for Adaptation:

Write a summary statement that details the risk to each of these sectors:

<b>SECTOR</b>	<b>WHAT IS THE RISK TO THIS SECTOR?</b>
<b>Freshwater Resources</b>	
<b>Terrestrial &amp; Freshwater Ecosystems</b>	
<b>Coastal Systems and Low-lying areas</b>	
<b>Marine Systems</b>	
<b>Food Security &amp; Food Production Systems</b>	
<b>Urban Areas</b>	
<b>Rural Areas</b>	
<b>Key Economic Sectors and Services</b>	

<b>SECTOR</b>	<b>WHAT IS THE RISK TO THIS SECTOR?</b>
<b>Human Health</b>	
<b>Human Security</b>	
<b>Livelihoods &amp; Poverty</b>	

Assessment Box SPM.2, Table 1

List the climatic drivers for each key risk in the tables below.

**Africa**

<b>Key Risk</b>	<b>Climatic Drivers</b>
Compounded stress on water resources	
Reduced crop productivity	
Changes in range of vector & water-borne diseases	

**Europe**

<b>Key Risk</b>	<b>Climatic Drivers</b>
Increased economic loss & people affected by flooding	
Increased water restrictions	
Increased economic loss & people affected by extreme heat events	

**Asia**

<b>Key Risk</b>	<b>Climatic Drivers</b>
Increased riverine, coastal, and urban flooding leading to widespread damage	
Increased risk of heat-related mortality	
Increased risk of drought-related water & food shortage causing malnutrition	

**North America**

<b>Key Risk</b>	<b>Climatic Drivers</b>
Wildfire-induced loss of ecosystem integrity, property loss, human morbidity & mortality	
Heat-related human mortality	
Urban floods in riverine & coastal areas, inducing property & infrastructure damage	

## Central & South America

Key Risk	Climatic Drivers
Water availability in semi-arid & glacier melt, also flooding & landslides	
Decreased food production & food quality	
Spread of water-borne diseases in altitude and latitude	

## Small Islands

Key Risk	Climatic Drivers
Loss of livelihoods, coastal settlements, infrastructure, ecosystem services and economic stability	
Interaction of rising global mean sea level in the 21 <sup>st</sup> century with high water-level events will threaten low-lying coastal areas	

## Ocean

Key Risk	Climatic Drivers
Distributional shift in fish & invertebrate species & decrease in fisheries catch	
Reduced biodiversity, fisheries abundance, and coastal protection by coral reefs	
Coastal inundation and habitat loss due to sea level rise, extreme events, changes in precipitation & reduced ecological resilience	

## Section C: Managing Future Risks and Building Resilience

1. What is considered the first step towards adapting to future climate change?
2. Using Table SPM.1, what methods (more than 1) could be used to manage risks of climate change for:
  - a. human development –
  - b. ecosystem management –
  - c. structural/physical damage:
    - i. engineered options –
    - ii. technological options –
    - iii. ecosystem-based –
    - iv. services –

Use Table SPM.A1 to provide evidence for each of the following. List only the high confidence evidence for each of these impacts.

**Africa**

TOPIC	HIGH CONFIDENCE EVIDENCE
snow & ice, rivers & lakes, floods & droughts	
coastal erosion & marine ecosystems	

**Europe**

TOPIC	HIGH CONFIDENCE EVIDENCE
snow & ice, rivers & lakes, floods & droughts	
coastal erosion & marine ecosystems	
terrestrial ecosystems	

**Asia**

TOPIC	HIGH CONFIDENCE EVIDENCE
snow & ice, rivers & lakes, floods & droughts	
coastal erosion & marine ecosystems	
terrestrial ecosystems	

**Australia**

TOPIC	HIGH CONFIDENCE EVIDENCE
snow & ice, rivers & lakes, floods & droughts	
coastal erosion & marine ecosystems	
terrestrial ecosystems	

**North America**

TOPIC	HIGH CONFIDENCE EVIDENCE
snow & ice, rivers & lakes, floods & droughts	
coastal erosion & marine ecosystems	

**Central & South America**

TOPIC	HIGH CONFIDENCE EVIDENCE
snow & ice, rivers & lakes, floods & droughts	
coastal erosion & marine ecosystems	

**Polar Regions**

TOPIC	HIGH CONFIDENCE EVIDENCE
snow & ice, rivers & lakes, floods & droughts	
coastal erosion & marine ecosystems	
terrestrial ecosystems	

**Small Islands**

TOPIC	HIGH CONFIDENCE EVIDENCE
coastal erosion & marine ecosystems	