



Many people living in Aberdeen and Aberdeenshire, particularly in the coastal zone, have questions about climate change that they do not have answers to or might be worried about the possible impacts. This leaflet aims to explain the most likely coastal impacts of climate change based on the knowledge experts have so far. Here we present some practical examples of what is being done to combat climate change problems and positive ways in which everybody can get involved in the solutions. For more information about how climate change might affect your coastal area, visit the website:

[www.aberdeencimatechange.net](http://www.aberdeencimatechange.net)

The Action Plan was written by Aberdeen City Council about what we can do practically in Aberdeen in line with international and national advice on climate change. It indicates actions underway in various council services or in partnership with other agencies. The five actions relate to:

- Climate change community awareness
- Climate change business awareness
- Climate change and education
- Climate change and energy use in the home
- Climate change and energy use in business centres

([www.aberdeencity.gov.uk/CommunityAdvice/environment/cma\\_youenviron\\_climate.asp](http://www.aberdeencity.gov.uk/CommunityAdvice/environment/cma_youenviron_climate.asp).)



A resource for the local people of Aberdeen and Aberdeenshire

## What can you do?

## Sources of further information

### LOCAL AND COASTAL

Coastal responses to climate change could include:

- Use of sand bags to offset shore erosion
- Elevating existing coastal structures
- High insurance premiums
- Creation of habitats e.g. wetlands in other areas
- Prohibition of new houses in lowland areas
- Appropriate coastal defences to combat erosion

### IN GENERAL

Responses to climate change could include:

- Using a greater proportion of energy from renewable sources e.g. wind and wave power, biomass etc.
- Reducing our waste and increasing recycling
- Making sure local MSPs and MEPs are aware of the need for change in policy at local, national and international levels
- Educating children about climate change and helping them make wise decisions about the environment and resource use

### LOCAL

**East Grampian Coastal Partnership** - a voluntary group with an interest in the Aberdeenshire coast: [www.egcp.org.uk](http://www.egcp.org.uk)

**The Macaulay Land Use Research Institute** - a centre for research and consultancy on the environmental and social consequences of rural land uses: [www.macaulay.ac.uk](http://www.macaulay.ac.uk)

**SEPA** - is responsible for protecting and improving Scotland's unique and beautiful environment: [www.sepa.org.uk](http://www.sepa.org.uk)

### SCIENTIFIC

**Department of Environment, Food and Rural Affairs:** [www.defra.gov.uk](http://www.defra.gov.uk)

**The Hadley Centre** - up to date climate change predictions: [www.metoffice.gov.uk/climatechange/science/hadleycentre](http://www.metoffice.gov.uk/climatechange/science/hadleycentre)

**UK Climate Impacts Programme** - government help to assess and adapt to climate change: [www.ukcip.org.uk](http://www.ukcip.org.uk)

### EDUCATIONAL (Climate change)

**Your Climate your Life** - supported by DEFRA - information for 7 to 16 year olds: [www.yourclimateyourlife.org.uk](http://www.yourclimateyourlife.org.uk)

**European Union** - advice and interactive information: [www.climatechange.eu.com](http://www.climatechange.eu.com)



INNOVATIVE MANAGEMENT FOR EUROPE'S CHANGING COASTAL RESOURCE





## Regional impacts

## Local coastal examples

### What is IMCORE?

IMCORE (Innovative Management for Europe's Changing Coastal Resource) hopes to promote an innovative and sustainable approach to reducing the impacts of climate change on coastal areas in North West Europe. It is not so much about predicting effects but offering suggestions of how we can all adapt to change. IMCORE recognizes the need for adaptations within coastal sectors e.g. fisheries, aquaculture, shipping, marine recreation and coastal defence. Scientists and practitioners involved in IMCORE span Ireland, the UK, France, Belgium and the Netherlands. In Scotland, the University of Aberdeen and Aberdeen City Council are the IMCORE partnership, working on a range of coastal projects (<http://www.imcore.eu>).

### What is climate change?

Climate change is a natural phenomenon but one that can also be accentuated by human activities. The extent to which temperature change over the last 100 years is due to human activities has been studied by looking at patterns of change across the Earth's surface and in the atmosphere and the ocean. The contributions of natural effects, e.g. variations in the Sun's output and volcanoes, have also been studied. Natural effects were found to be unable to account for all the observed changes. Only when greenhouse gases emitted by human activities are included can the changes be explained.

### What are the drivers and the impacts?

Natural drivers of climate change include changes in the Earth's orbit; changes in Sun intensity, volcanic eruptions (emitting greenhouse gases) and oceanic and atmospheric circulation patterns. Anthropogenic drivers include greenhouse gas emissions (from burning fossil fuels) and land use/land cover changes (e.g. deforestation).

In the coastal zone of northwest Europe the main impacts include sea level rise, extreme weather events, flooding, sea temperature and chemistry changes, air temperature changes and changes in precipitation (rainfall and snowfall). The following map and series of illustrations are used to explain what these impacts might really mean for coastal communities.



**SEA LEVEL RISE**  
(max. 61 cm by 2080)  
may lead to the loss of coastal habitats  
e.g. wetlands



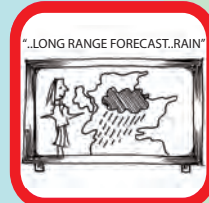
**EXTREME WEATHER EVENTS**  
such as storms may lead to severe coastal erosion in places



**SEA TEMPERATURE CHANGES**  
may cause the loss of native species and an increase in non-natives



**AIR TEMPERATURE CHANGES**  
(by 2-3.5°C) may be positive for tourism but may mean an increase in pollution and pests  
e.g. mosquitoes



**FLOODING AND PRECIPITATION CHANGES**  
such as heavier rainfall by up to 25% may increase flooding from rivers



**SEA CHEMISTRY CHANGES**  
may lead to ocean acidification, meaning some marine life will have problems  
e.g. in shell formation



Decreased rainfall in summer may cause loss of some crops and changes to moorland habitats such as those at Scotstown Nature Reserve

Increased temperatures may positively affect coastal tourism in locations like Aberdeen beach

Storm surges and coastal erosion may be a problem in coastal areas such as Speyside

Coastal regeneration projects focus on a range of coastal improvements

Coastal erosion has had a severe effect on the Aberdeenshire coastline in places like Aberdeen and Stonehaven. Coastal defences are in place here

Increase in winter rainfall may increase flood risks from rivers, such as the Don and the Dee