

The 'Coast' represents Scotland's extensive and varied coastline. This includes communities from the islands of the Hebrides and Northern Isles, to the dunes and golf courses of the East coast and Ayrshire.

Sea level rise will increase flooding and accelerate erosion at our coasts. Warming seas and acidification will impact on marine ecosystems. This will have significant impact on coastal communities, infrastructure and industries. Long-term planning will need to take account of a changing coast.

### Unadapted



### Adapting



### Coastal Change

Sea level rise will accelerate coastal erosion and change the coast. Erosion can be limited through managing coastal systems, for example by protecting dunes with planting and preventing access by livestock. Long term planning for inevitable change can limit the impacts on people and ecosystems, in some cases this may be managed realignment of the coast.

### Unadapted



### Adapting



### Relocate Infrastructure

Sea level rise will increase coastal flooding and accelerate coastal erosion, damaging coastal defences and infrastructure. It may be a better long-term option to relocate infrastructure, such as road and rail networks, away from particularly vulnerable coastal locations.

### Unadapted



### Adapting



### Community Hubs

Remote communities, and the services that support them, can be vulnerable. Community hubs can support community groups, demonstrate good practice and co-ordinate emergency response to severe weather.

# Info sheet 4: The Coast

## Unadapted



## Adapting



### *Agricultural Productivity*

A warming climate may benefit agricultural productivity and allow more diverse crop types, although weather will remain variable and at times damaging. Managing potential waterlogging of fields, improving soil quality and maintaining protective shelterbelts can increase resilience.

## Unadapted



## Adapting



### *Buildings at the Coast*

Sea level rise will increase coastal flooding and erosion. Managing coastal systems carefully can limit erosion but at some locations buildings cannot be protected. Careful planning for change can ensure suitable use of coastal sites.

## Unadapted



## Adapting



### *Managed Re-alignment*

Flood protection banks can lead to coastal squeeze, limiting natural processes and movement of habitats. Removing or relocating the protection inland can allow the coastline to re-align and develop mudflat and saltmarsh habitats.

## Unadapted



## Adapting



### *Coastal Heritage*

Coastal erosion can damage heritage sites but it also exposes new archaeological features. Options to defend sites are limited and not always desirable. The focus can be on new discoveries and visitor information rather than preservation.

# Info sheet 4: The Coast

## Unadapted



## Adapting



### *Slope Stability*

Increased rainfall can lead to slope instability and more frequent disruption of key transport links. Geotechnical engineering or the planting of appropriate vegetation can improve slope stability, although in some circumstances it may be necessary to relocate roads.

## Unadapted



## Adapting



### *Waterfront Buildings*

Coastal flooding will increase due to rising sea level. Buildings that are considered vulnerable to flood risk, like homes, should be set back from coast. Existing at-risk buildings can be converted to less vulnerable uses, like shops and offices, taking flood resilience measures.

## Unadapted



## Adapting



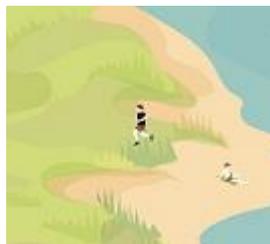
### *Re-establishing Coastal Processes*

Sea level rise is driving change at the coast, putting pressure on coastal systems. Land use in some locations, like plantation forestry, may need to make room for coastal processes of sand redistribution and dune formation.

## Unadapted



## Adapting



### *Dune Systems*

Removing hard coastal defences where they are not essential allows the natural process of dune formation in response to sea level rise. This maintains the dune system's capacity to benefit nearby settlement. A small part of the golf course can be redesigned to accommodate this change.

# Info sheet 4: The Coast

## Unadapted



## Adapting



### *Resilient Harbour*

Sea level rise will increase exposure to storm surge flooding, as well as undermining coastal defences. Harbour infrastructure and buildings will need strengthened defences. Response and recovery operations will need to be planned. A new harbour wall provides a possible renewable energy innovation opportunity.

## Unadapted



## Adapting



### *Aquaculture*

Increasing water temperature and ocean acidification will affect growth rates of farmed finfish and shellfish, increase the presence of parasites and pathogens, and change species suitability. Aquaculture will need to consider choice of species, manage threats, and innovate in design and technology.

## Unadapted



## Adapting



### *Fisheries*

Warming seas will change species distributions as warm water species, like red mullet and sea bass, begin to replace cold water species, like cod. Fisheries will need to travel further or change target species. This may alter the equipment needed or how the fish is supplied to consumers.

Adaptation Scotland is a programme funded by the Scottish Government and delivered by Sniffer



The Climate Ready Places Project was completed with additional support from



## Adaptation Scotland

Sniffer, Edinburgh Centre for Carbon Innovation, High School Yards, Infirmary Street, Edinburgh EH1 1LZ, Scotland UK

T: 0131 651 4675 E: [adaptationscotland@sniffer.org.uk](mailto:adaptationscotland@sniffer.org.uk) W: [www.adaptationscotland.org.uk](http://www.adaptationscotland.org.uk)

Scottish Charity No SC022375, Company No SC149513. Registered in Edinburgh. Registered Office: 1 Exchange Crescent, Conference Square, Edinburgh, EH3 8UL