

The 14 UK Overseas Territories (UKOTs) constitute a small land area with large ocean provinces, extending from the polar ocean to tropical seas. Collectively they represent the 5th largest marine estate in the world.

When considering priority climate change issues, many UKOTs are concerned about impacts on food security, both from local fisheries and food imports. Changes to the coastal zone caused by erosion and sea-level rise are a key issue for many UKOTs, including the natural coastal protection afforded by coastal and marine habitats. Impacts on large marine ecosystems and food webs in the seas and oceans around them were also highlighted by many UKOTs.

For this work, the UKOTs were grouped geographically into six regions. Experts from the regions identified the most pressing climate change issues for their UKOTs.

## CARIBBEAN AND MID ATLANTIC

Key climate change drivers include changes in storms and waves, sea level rise, erosion, temperature rise, ocean acidification, changes in ocean circulation and decreasing dissolved oxygen, erosion.

Priority issues identified:

- **Food security, fish, and fishing communities**, affecting the future sustainability of fisheries and livelihoods in local communities.
- **Coral reefs**, and wider effects on ecosystem health and marine food webs, and the reefs appeal for tourism and recreation.
- **Natural coastal protection** from the growing threat of erosion and flooding, and the resulting impacts on coastal populations and economic activities at the coast. Climate change risks are being exacerbated by the degradation and loss of coastal ecosystems due to human activities.

## MEDITERRANEAN

Key climate change drivers include increasing temperature, salinity, oxygen, ocean acidification, changes in ocean circulation, erosion and sea-level rise.

Priority issues identified:

- **Ecosystem function and food webs**, with critically endangered species and regionally important habitats under pressure, exacerbated by the spread of alien invasive species.
- **Human health, coastal communities and infrastructure** due to an increase in flood risk. Jellyfish and some algal species could become more abundant, presenting a risk to human health and industrial intakes.

## COMMON CHALLENGES

There is strong evidence for climate change impacts in regional seas, but a lack of local baseline data makes it difficult to measure changes and identify trends in the UKOTs. Resources for implementing new long-term monitoring programmes are highly constrained.

Many projections of future conditions are based on global models which do not realistically represent regional and local land and sea areas in the UKOTs, creating uncertainty when planning adaptation and resilience building actions.

Despite strong environmental protection measures in the UKOTs, adapting to the effects of large-scale ocean and atmosphere changes is a major challenge. Globally, concerted action to move to net zero emissions is critical to limit the consequences for these unique and sometimes isolated environments and communities.

## PACIFIC OCEAN

Key climate change drivers include increasing temperature, ocean acidification, extreme events, sea-level rise and decreasing dissolved oxygen concentration.

Priority issues identified:

- **Coral reefs and associated communities**, which are at risk from the combined effects of warming and ocean acidification.
- **Coastal and deep-water fisheries resources** as reef fish are impacted from changes in their habitats and reduced oxygen levels could make Pitcairn's waters less suitable for some tuna species.
- **Imports to the island and the safe movement of goods at sea**. Pitcairn Island relies heavily on imports for food, fuel, clothing, medicines and most other goods and materials, which could be disrupted by extreme events and an increased risk of flooding.

## SOUTH ATLANTIC

Key climate change drivers include increasing temperatures, sea-level rise, extreme events, and changes in ocean circulation.

Priority issues identified:

- **Fish and invertebrates**, such as tuna, squid and lobster, that are harvested for human consumption, affecting **food security**.
- **The growth and productivity of marine plants**, including plankton, which form the basis of the food web and kelp which provides important habitat.
- **Coastal communities**, as sea level rise and storms potential threaten the 'islander' way of life and **cultural identity**, including declines in iconic marine and seabird species.

## INDIAN OCEAN

Key climate change drivers include increasing temperatures, ocean acidification, decreasing dissolved oxygen, changes in ocean circulation, erosion, sea-level rise and extreme events.

Priority issues identified:

- **Corals**, with an increase in bleaching, caused by heat stress, as well as physical damage from storms. Several coral species are already becoming rare or significantly reduced in abundance.
- A reduction in **reef habitat quality** and structural complexity because of rising temperature, physical damage and ocean acidification with, impacts on other organisms, such as fish.
- **Reef islands and sandy beaches** could be affected by changes in sea level, storms and waves and large-scale ocean processes, especially on eroding coasts exposed to the prevailing winds. These changes could affect important terrestrial habitat, natural coastal protection, and island maintenance.

## POLAR

Key climate change drivers include increasing temperatures, ocean acidification, decreasing dissolved oxygen and changes in ocean circulation.

Priority issues identified:

- How **food webs and ecosystems function**, impacting on charismatic species and important ecosystem services such as fisheries and carbon storage.
- **Sea ice** which helps regulate global climate and provides critical habitat for wildlife, including species of penguins and seals, and krill.
- How **carbon is used and stored** by the ocean and marine organisms, which helps to remove excess CO<sup>2</sup> from the atmosphere.