

The coast: a particularly exposed area

The coastline is permanently in movement, due to the powerful forces of the sea, the wind and the coastal rivers. It is a place of contacts and exchanges and it hosts some of the richest and most productive areas of the planet. These elements contribute to make the coasts attractive but also sensitive to different forms of artificialization and to marine and terrestrial pollutions.

Through centuries, Man has developed various activities along the coast that he tried to value and secure by controlling the coast's natural evolutions.

Today, the logic is reversed : climate change and sea level rise make impossible to manage risks only by relying on hard defence of the coastline.

It is necessary to leave some space to natural phenomena and use natural areas as buffer zones to face meteorological events and pull away what is at stake on the most vulnerable zones.

The free evolution of the coastline, within a wide enough area, allow the sedimentary transfers to find a balance so to absorb the sea's energy during storms and then reduce the risks located behind.

Preserving natural coastal areas is an efficient and cost-effective solution to mitigate and adapt to climate change.

In December 2015, France will host the 21st United Nations Climate Change Conference. On this occasion, a new agreement will be negotiated in order to regulate the greenhouse gas emissions to limit the global temperature increase to 2 °C above pre-industrial levels. In this context, France Nature Environnement and the Conservatoire du littoral join together in order to raise awareness and mobilize around the issues of the natural coastal areas' protection.



Created in 1975, le Conservatoire du littoral is a public organization under the responsibility of the Ministry in charge of Ecology. Its missions are to definitely protect the natural areas on the seashores and wide lake shores of metropolitan France and overseas. The Conservatoire du littoral works in partnerships with local authorities, government services and associations to valorize the sites and guarantee their access to the public. In 2015, the Conservatoire du littoral protects 160 000 hectares over 700 sites.

www.conservatoire-du-littoral.fr

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Natural coastal areas and climate change



What is the greenhouse effect?

The gas naturally present in the atmosphere warm up the Earth to an average temperature of 15°C. By doing so, they support life on Earth by what is called the "greenhouse effect". The Intergovernmental Panel on Climate Change (IPCC) stated in its studies that the concentrations of greenhouse gas are increasing since the industrial revolution, and it is now obvious that human activities are the cause of the global warming experienced nowadays.

What are the conclusions of the IPCC on the evolution of climate and the impacts?

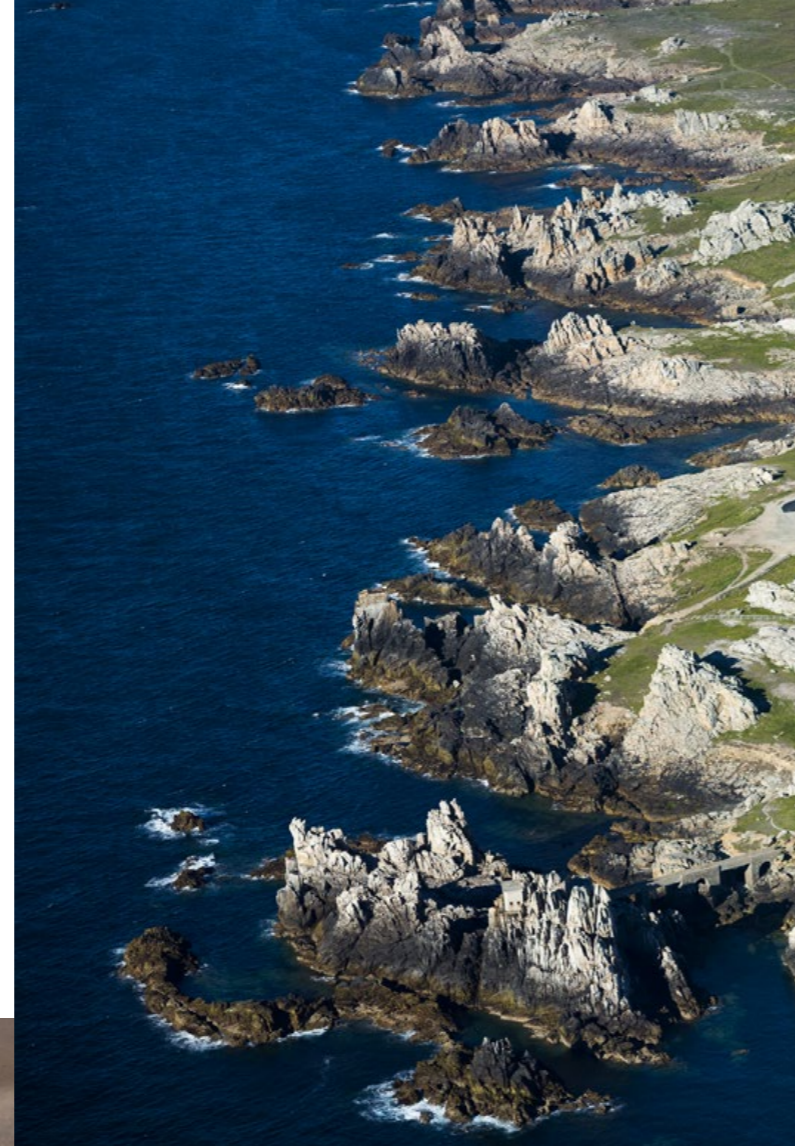
The IPCC has studied the evolution of the climate until 2100 according to different scenarios of carbon dioxide emissions. Depending on the levels of emissions, the temperatures could reach 1,1°C to 4,8°C above the levels registered during the industrial revolution, until 2100. Moreover, the sea level could rise from 26 to 82 cm. These effects could lead to impacts on : changes for ecosystems and the conditions of agricultural production, the rise of health risks and most likely the rise of extreme meteorological events that will lead to marine erosion and submersion .

What can be done?

MITIGATION : It consists in implementing measures in order to reduce the concentration levels of greenhouse gas. On one hand, by limiting the sources of emissions in different sectors, on the other hand by absorbing the carbon dioxide in the atmosphere thanks to healthy "carbon sinks" that are the natural areas, as for example forests or the biggest of them all, the ocean.

ADAPTATION : Adapting to climate change needs to take measures with anticipation to reduce the consequences of climate change on the society. It includes for example the economy of water, the use of vegetation to refresh the urban areas, the adaptation of building standards and the development of coastal observation networks.

Sandy shores



Rocky shores

Cliffs and low rocky shores have different dynamics according to the nature of their rock. They are exposed to terrestrial and marine erosion factors that will be probably increased in a climate change context.

Cliffs are a natural bulwark against marine submersion. Even when they move back due to erosion, the cliffs still protect what is located behind thanks to their remaining heights. Indeed, rocks pile up at their feet so they reduce the waves' energy and its effects. In the same time, those rocks nourish the neighbouring beaches allowing them to resist to erosion.



Wetlands

Wetlands are one of the richest ecosystem of the planet. Filled with freshwater or saltwater, permanently or temporarily, with natural or anthropogenic origins, they present a great variety of landscapes from wet grasslands to tropical lagoons.

They are major allies to face climate change. By storing water, they supply the rivers and water tables in times of drought and they reduce floods' intensity. They are also a buffer area and protect the coast by dissipating the sea's energy. Wetlands prevent coastal erosion thanks to its vegetation. This same vegetation capture carbon dioxide by photosynthesis so wetlands are also one of the most important natural carbon sink.



Mangroves

Mangroves are located in the intertropical regions. They are the forests that disappear the fastest in the world due to human occupation of the coasts. According to the Food and Agriculture Organization (FAO), the world has lost 20% of the total area of mangroves since 1980.

Scientists and protectors of the environment are particularly interested in them because they constitute great means of resistance against climate change. On one hand, they are a natural barrier against storms and tsunamis and they prevent erosion. On the other hand, they absorb 2 to 3 times more carbon dioxide than other forestry systems.

