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# The continuous degradation of Europe's coasts threatens European living standards

Living by the sea is very attractive. People picture coasts as an immutable asset, yet damaging and irreversible changes to coastal ecosystems continue unabated. Available trends show that changes in land use in coastal areas outstrip those seen elsewhere; for instance, the growth of artificial surfaces along Europe's coasts is increasing at a rate one third faster than in inland areas. These changes are widespread and driven by a range of factors — demographic changes, economic restructuring, increased living standards and leisure time and global trade patterns. In many coastal regions these factors have caused rapid changes that have drastically altered the potential long-term viability of coastal ecosystems and the services they provide. It is increasingly likely that existing impacts on coastal ecosystems will be exacerbated from now on by climate change.

Coastal ecosystems provide a wide range of services to society. These include provisioning services, such as supply of food, fuel wood, energy resources and natural products, and cultural (amenity) services, such as tourism and recreation. In addition, coastal ecosystems offer important regulating and supporting services, e.g. shoreline stabilisation and buffering from natural hazards or detoxification of polluted waters. As coasts have increasingly assumed a 'gateway' function in global trade and logistics, they have become more and more developed and ecosystem services have been degraded as a result.

These trends are important because such services represent a significant proportion of the total economic value of coastal zones. For example, Europe's biological marine resources largely depend on the quality of coastal zones. If there are disruptions in these natural functions, the processes of degradation will progressively accelerate and make any possible response from society difficult. These natural functions cannot be replaced by technology.

Despite some successes most coastal regions are among the least economically developed areas of the EU. In 1996, 19 out of the then twenty-five less favoured areas of the EU-15 were coastal regions and this continues to be an important issue today in the enlarged EU-25. Small islands are especially affected by social and economic problems (e.g. migration and lack of economic infrastructure).

So far, development on the coasts has been based on economic restructuring. This has been achieved mainly through tourism and the associated boom in construction, especially in the Mediterranean and Atlantic regions. In other regions, priority has been given to the economic restructuring of the fishing industry, due to the dramatic decline in fish stocks. Also, increases in the number of harbours and the amount of maritime transport have led to the emergence of coasts as logistical platforms.

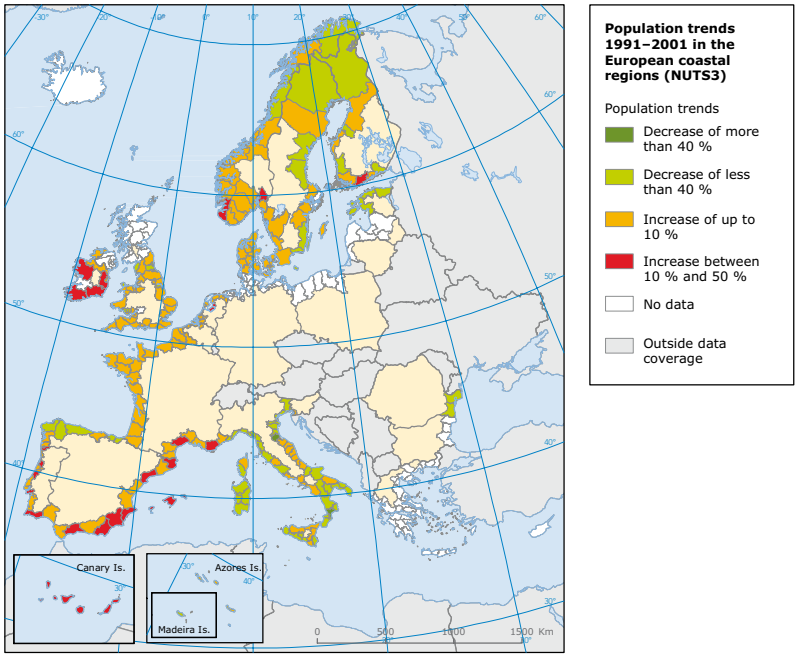
At the same time, urban sprawl, resort and port development, and aquaculture are directly affecting ecosystems. Their effects extend beyond the direct impacts of pollution, sedimentation and changes in coastal dynamics. Destructive

fishing practices, over-harvesting of coastal sea-beds, climate change and sea level rise are also important threats to coastal habitats, such as extensive farmlands, wetlands and sea-grass beds.

Added to this, population densities in coastal regions are, on average, 10 % higher than their inland equivalent; in some countries this figure is as high as 50 %. More disturbingly, the conversion of natural areas on the coast to human-made artificial surfaces is growing at an even faster rate than population density. Due to the irreversible nature of such changes, they are seen as one of the main threats to the sustainability of coastal zones. Housing (mostly secondary housing in many areas), services and recreation are the main factors, constituting 61 % of total coastal land uptake for artificial surfaces.

In the past, most coastal areas were considered peripheral. However, today more and more coastal zones constitute prime space for development. There are many coastal zones in Europe where the share of human-made surfaces exceeds 45 % of the total area of the coastal strip (i.e. up to 1 km from the coastline). The most intensively used areas are in the Mediterranean coastal zones (France, Spain and some parts of Italy). The entire French Atlantic coast is also intensively populated as well as the Spanish Atlantic regions (Basque Country and Huelva) and important stretches of the coast in Portugal. Many North Sea coasts are also intensively built-up (Netherlands and Belgium).

**Population trends between 1991 and 2001 in the European coastal regions**

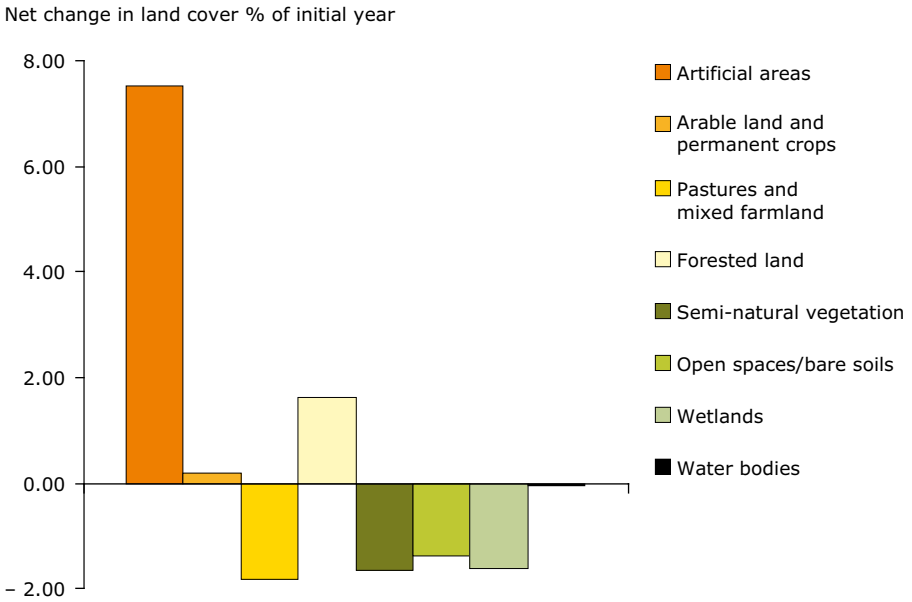



**Source:** EEA, 2006, based on population census 1991 and 2001, Eurostat.

Higher standards of living across the EU, the liberalisation of European air routes, the resulting growth of low-fare airlines together with the development of trans-European road and rail links, have greatly increased the mobility of Europeans, and their access to coastal areas in particular. In addition, the growth in personal incomes mean more people are investing in second homes especially in coastal areas, because they offer both good value and new leisure opportunities. The development of the facilities and services to support 'second-homers' and tourists (e.g. hotels, aquatic parks, golf courses and cart circuits) means that many coastal areas now stand to lose their local identity.

Coastal regions face an additional threat from climate change. The various aforementioned non-climatic pressures may have already affected adversely the long-term viability of coastal ecosystems and hence their ability to cope with the additional pressures of climate change. The natural floodplains of the main European rivers have already been predominantly lost to development (e.g. Rhine, Elbe and Po). Coastal lowlands have also experienced similarly rapid rates of development with an increase of 1 900 $km^2$ in artificial surfaces between 1990 and 2000. This trend shows no sign of abating. As a result, so called 'coastal squeeze' is being experienced in many coastal areas. 'Coastal squeeze' refers to when buildings and infrastructure both spread and

**Land cover change within 10 km coastal zone of 17 European countries, 1990–2000**



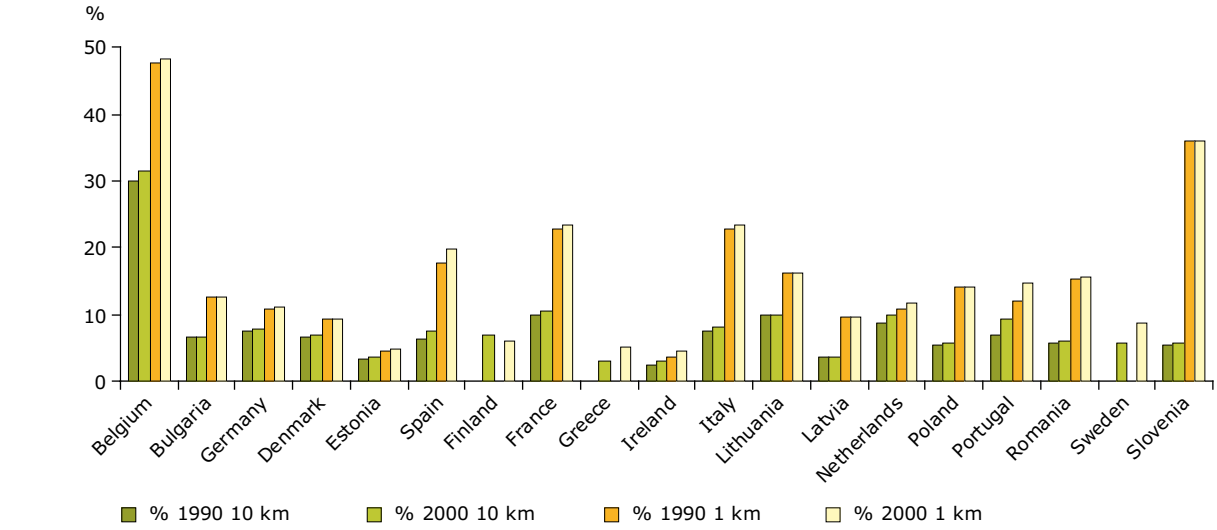

**Source:** EEA, 2006.

grow closer to the shoreline at the expense of natural systems, which normally act as buffers between the sea and the land. This squeeze increases the vulnerability of coastal areas to climate change and sea level rise, especially during extreme events, such as storm surges.

Improving coastal zone management, especially with respect to spatial planning, has the potential of reducing the vulnerability of coastal regions to the consequences of climate change. National climate change adaptation strategies are now emerging in several countries, offering clear guidance for increasing the natural resilience of coasts and improving sustainability. For example, the principle of managed retreat, which aims to reduce the vulnerability of social-environment systems from climate change impacts, serves well the basic idea of integrated coastal management.

Since 1995, concern about the state of European coastline has led to a number of EU initiatives, which build on the concept of integrated coastal zone management (ICZM). ICZM attempts to balance the needs of development with protection of the very resources that sustain coastal economies. The specific objective of the EEA work is to contribute to the review in 2006 of the Recommendation of the European Parliament and the Council concerning the implementation of ICZM (2002/413/EC). The European Marine Thematic Strategy also addresses coasts by promoting

**Built-up area in the 0–1 km coastal strip versus the entire 10 km zone, 1990–2000**




**Source:** EEA, 2006.

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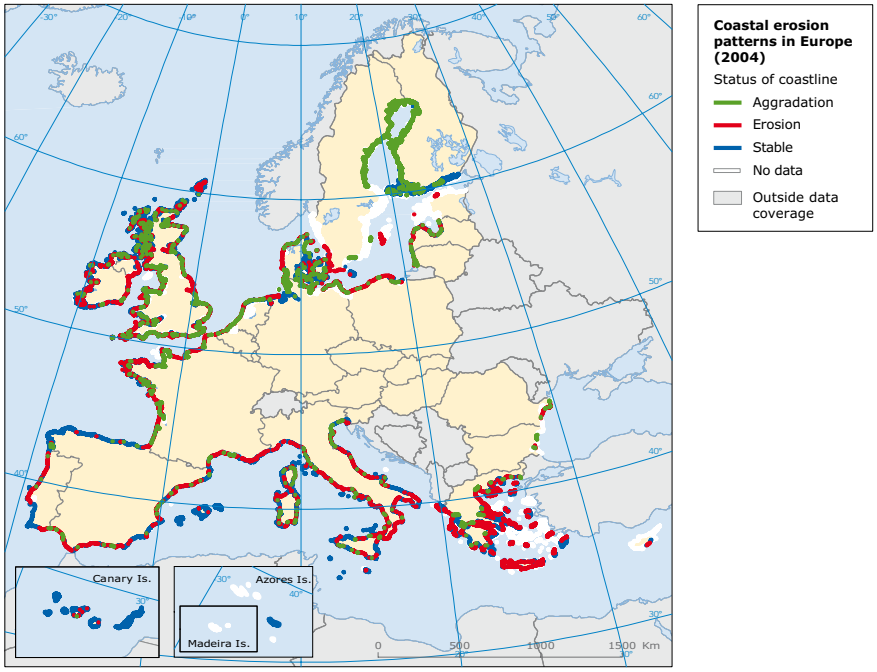
**Coastal erosion patterns in Europe, 2004**




**Source:** EEA, 2006, based on Eurosion, 2004.

an ecosystem-based approach and proposing Marine regions. The EU has also embarked on the development of a Maritime policy. All of these new policy developments have the potential to contribute to improving the integrated management of coasts and their ecosystems. A key measure of success will be the design of coherent actions across these policies and their implementation through improved governance mechanisms.

## References

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