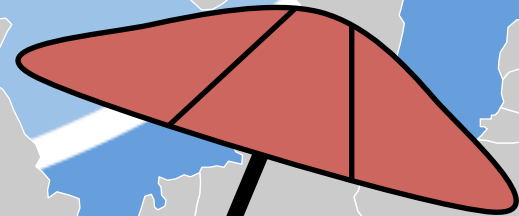




Europe's summer tourism in a changing climate

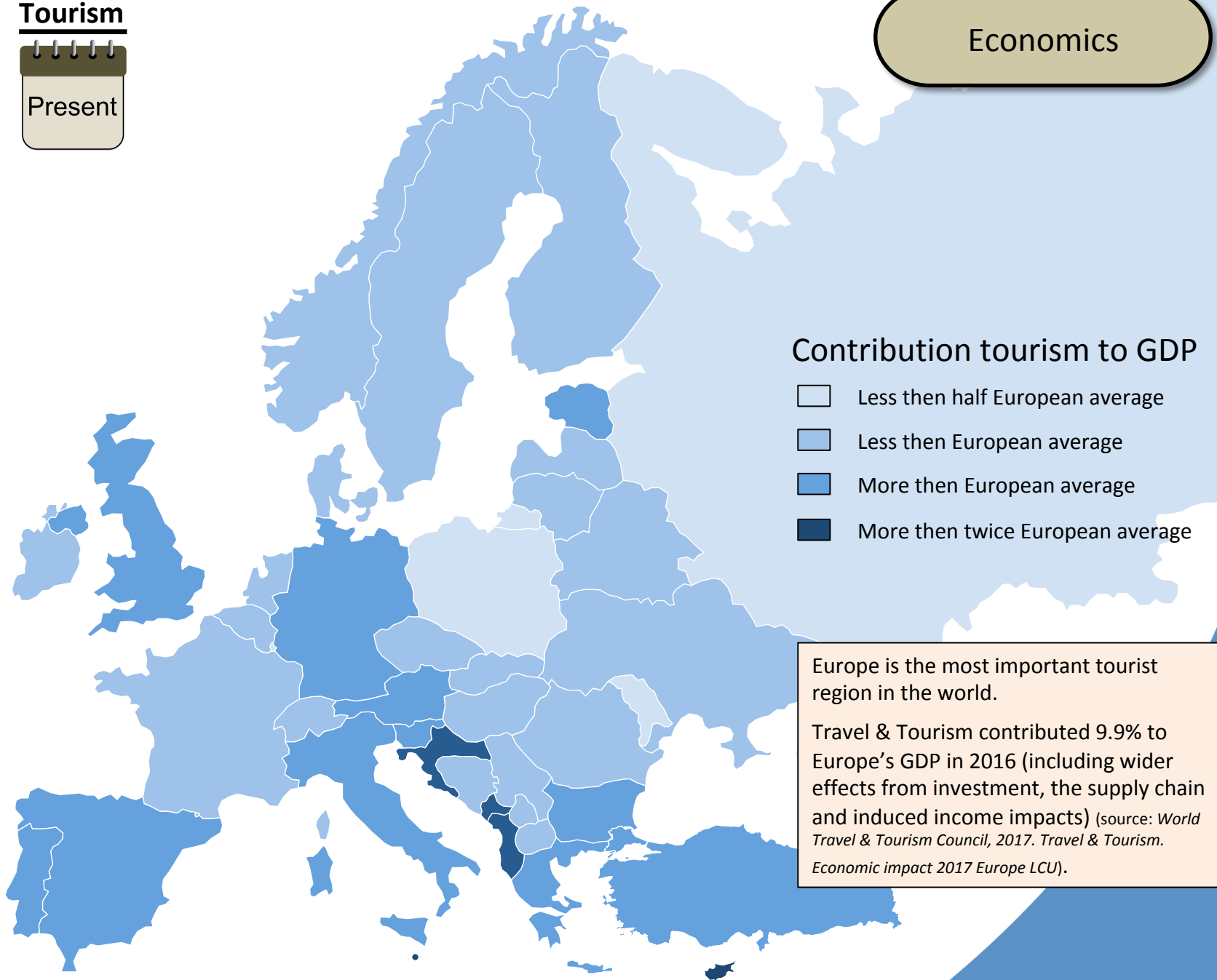




Tourism



Economics



Contribution tourism to GDP

- Less than half European average
- Less than European average
- More than European average
- More than twice European average

Europe is the most important tourist region in the world.

Travel & Tourism contributed 9.9% to Europe's GDP in 2016 (including wider effects from investment, the supply chain and induced income impacts) (source: *World Travel & Tourism Council, 2017. Travel & Tourism. Economic impact 2017 Europe LCU*).



Tourism



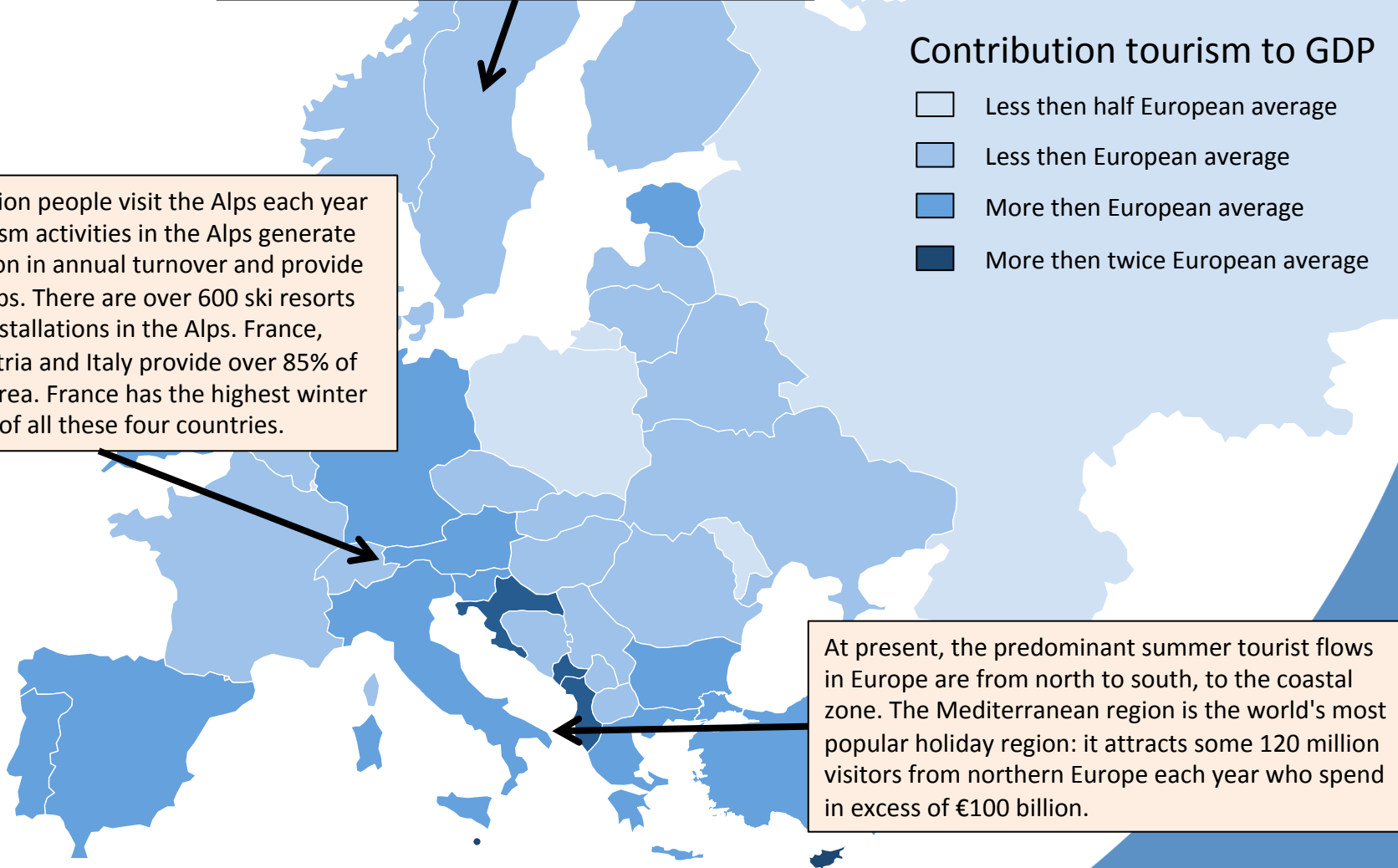
The Nordic countries are good examples of destinations with highly diversified nature-based tourism industry. The decline of traditional economies such as reindeer husbandry and agriculture has increased the importance of nature-based tourism as a source of income (snowmobiling, dog sledding, reindeer activities, cross-country skiing and fishing).

Economics



Contribution tourism to GDP

- Less then half European average
- Less then European average
- More then European average
- More then twice European average

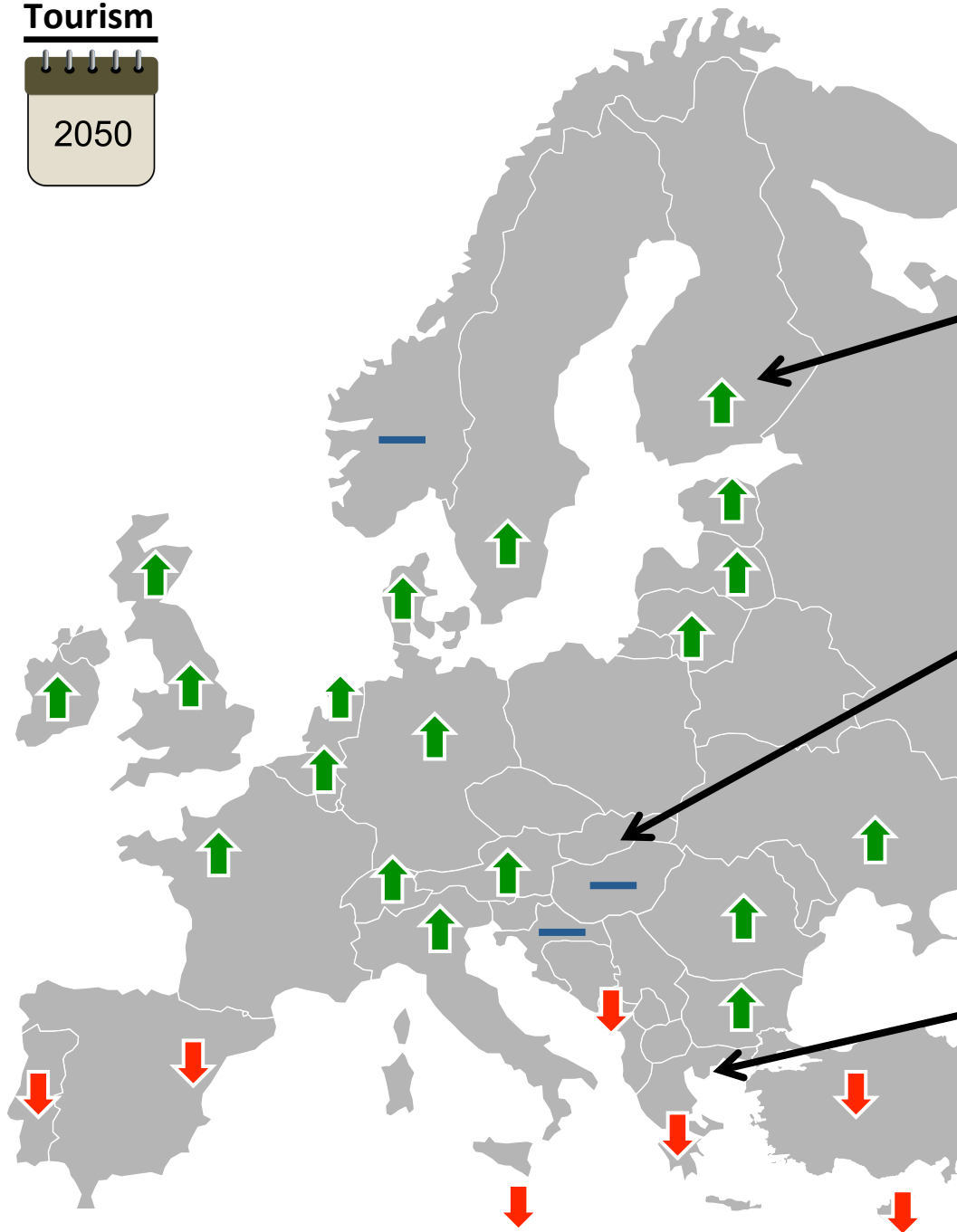


About 60-80 million people visit the Alps each year as tourists. Tourism activities in the Alps generate close to €50 billion in annual turnover and provide 10-12% of the jobs. There are over 600 ski resorts and 10,000 ski installations in the Alps. France, Switzerland, Austria and Italy provide over 85% of Europe's skiing area. France has the highest winter season turnover of all these four countries.

At present, the predominant summer tourist flows in Europe are from north to south, to the coastal zone. The Mediterranean region is the world's most popular holiday region: it attracts some 120 million visitors from northern Europe each year who spend in excess of €100 billion.



Tourism



Summer tourism: winners and losers

In an assessment for the Nordic region, the length of good conditions across Denmark, southern Sweden, the Swedish coastline, and southern Finland is projected to visibly increase by the 2050s, up to four or five months. The same trend prevails into the 2080s. According to this assessment, good conditions fail to materialise for any extended period across Greenland, Iceland or Norway.

Overall, climate change could increase the touristic appeal of the central and eastern European countries. Only minor effects are expected from climate change though, as cultural tourism, which is not dependent on climate, is more important.

In the Mediterranean states, increasing average temperatures, together with the increasing probability of heat waves, could result in temperatures exceeding comfortable levels more frequently in the future. Other problems are shortages of water, that restrict the operation of tourist facilities (swimming pools, golf courses), and increasing risk of forest fires in many areas. The return of malaria to the southern Mediterranean region also cannot be ruled out.



Tourism



Winners summer tourism: some details

Overall, Norway, Sweden and Finland are very similar as tourist destinations. In the important summer months, the countries in northern Europe could enjoy growing incomes from tourism in future, due to the longer season.

Change tourism potential

- Increase
- No major change
- Decrease

Ireland and the UK have no pronounced high- and off-peak seasons for tourism. Visitors travel to the region the whole year round and relatively irrespective of the weather. In general, climate change may bring, if anything, positive effects for these countries. Ireland could attain 2-3 'very good months' by the end of the century (it currently has none).

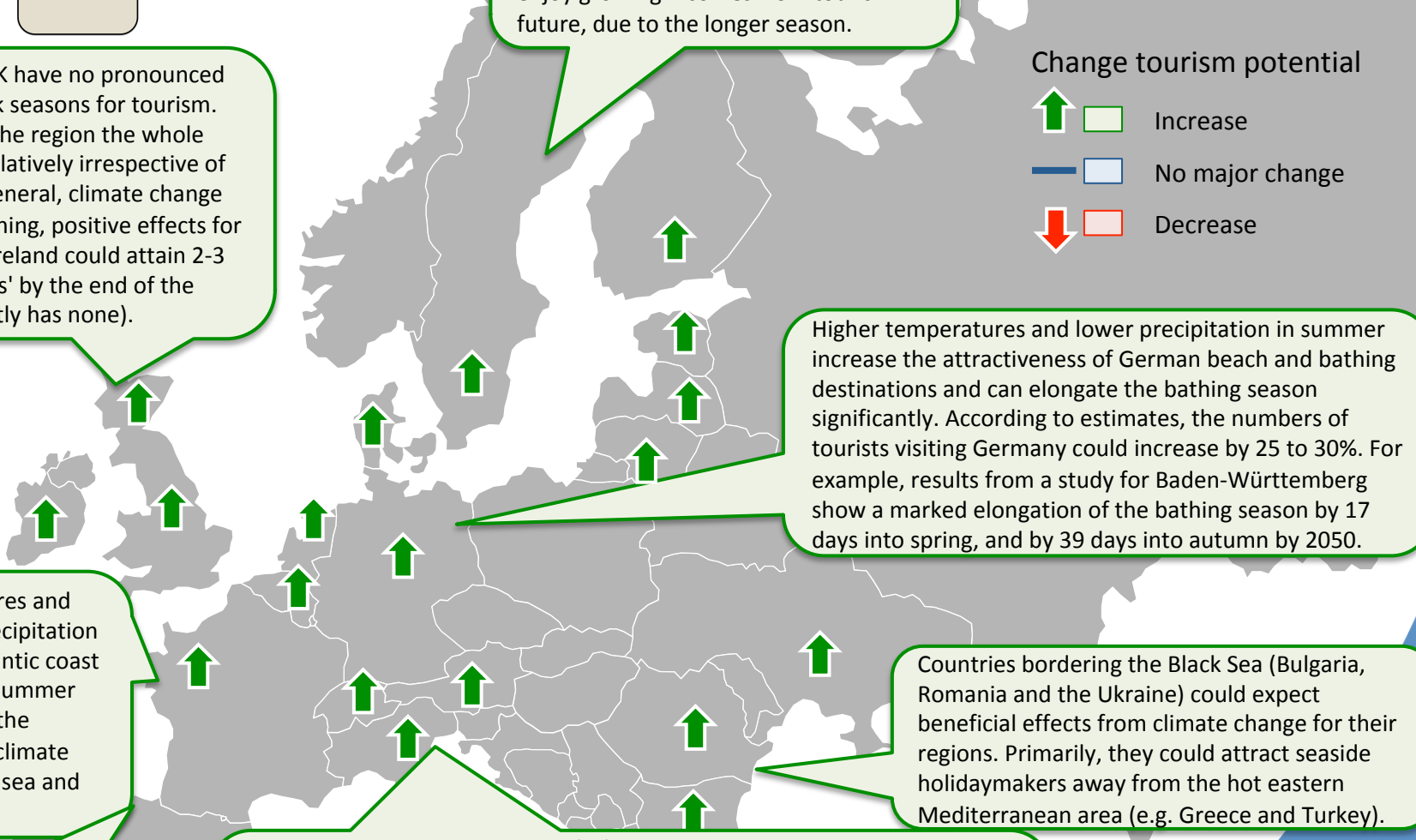
Higher temperatures and lower precipitation in summer increase the attractiveness of German beach and bathing destinations and can elongate the bathing season significantly. According to estimates, the numbers of tourists visiting Germany could increase by 25 to 30%. For example, results from a study for Baden-Württemberg show a marked elongation of the bathing season by 17 days into spring, and by 39 days into autumn by 2050.

Higher temperatures and lower levels of precipitation on the French Atlantic coast could extend the summer season and make the sometimes harsh climate more pleasant for sea and sand holidays.

Countries bordering the Black Sea (Bulgaria, Romania and the Ukraine) could expect beneficial effects from climate change for their regions. Primarily, they could attract seaside holidaymakers away from the hot eastern Mediterranean area (e.g. Greece and Turkey).

The winner in Spain is the northern Atlantic coast. Here, an increase in the moderate temperatures and lower levels of precipitation could have a positive effect on the attractiveness of the region.

Alpine tourist resorts could benefit from hotter temperatures at lower elevations under future climates. Tourists already react on a short-term basis to hot days and spend more nights in hotels in mountain resorts. If heat waves become more regular, it seems likely that tourists will choose to stay at alpine resorts more frequently and for longer periods. Numerous places at lakes and rivers might become an alternative to seaside holiday resorts at the Mediterranean Sea. However, more tourists in summer will not compensate for the loss of income of mountain resorts in winter.











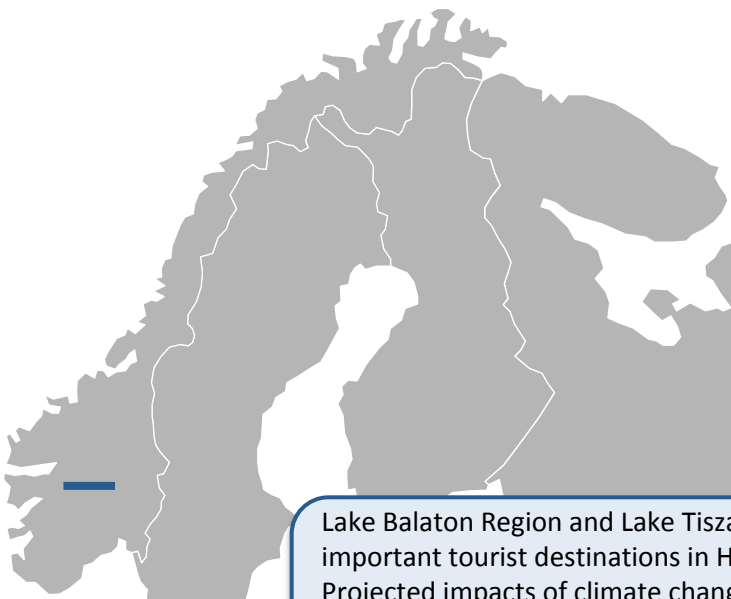
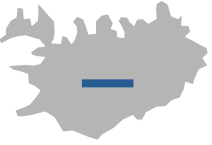
Tourism



Losers summer tourism: some details

Change tourism potential

-   Increase
-   No major change
-   Decrease

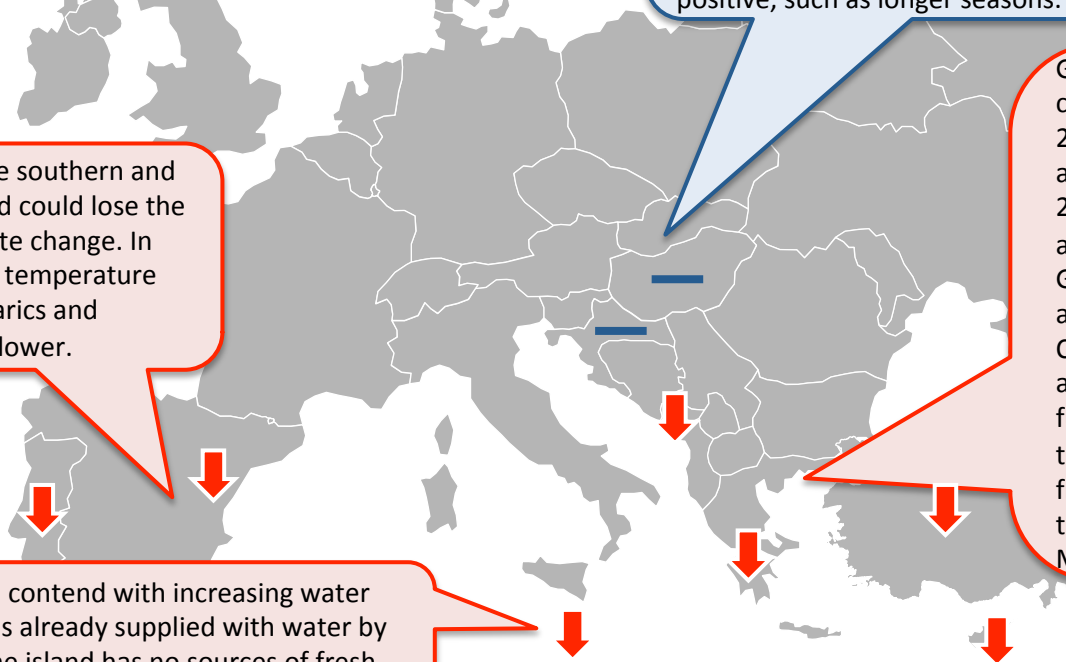


Lake Balaton Region and Lake Tisza Region are important tourist destinations in Hungary. Projected impacts of climate change are partly negative, such as decreasing water quality (eutrophication) and quantity, and partly positive, such as longer seasons.

Within Spain, the southern and eastern mainland could lose the most from climate change. In comparison, the temperature rises in the Balearics and Canaries will be lower.

Greece will be one of the losers from climate change. The length of the tourism season in 2021-2050 compared with 1961-1990, defined as days with maximum temperatures above 25°C, will probably increase by more than 20 additional summer days in all tourist areas of Greece. This estimation may increase to 30 (i.e. an extra month per year) in coastal areas of Crete. However, in midsummer many tourists already find the heat extreme. By 2030 this will further increase. In addition, on many islands there are difficulties with water supply. The frequent forest fires are also a problem for tourism. The return of malaria to the southern Mediterranean region also cannot be ruled out.

Malta will have to contend with increasing water shortages. Malta is already supplied with water by tanker ships, as the island has no sources of fresh water, in the form of streams or rivers, of its own.



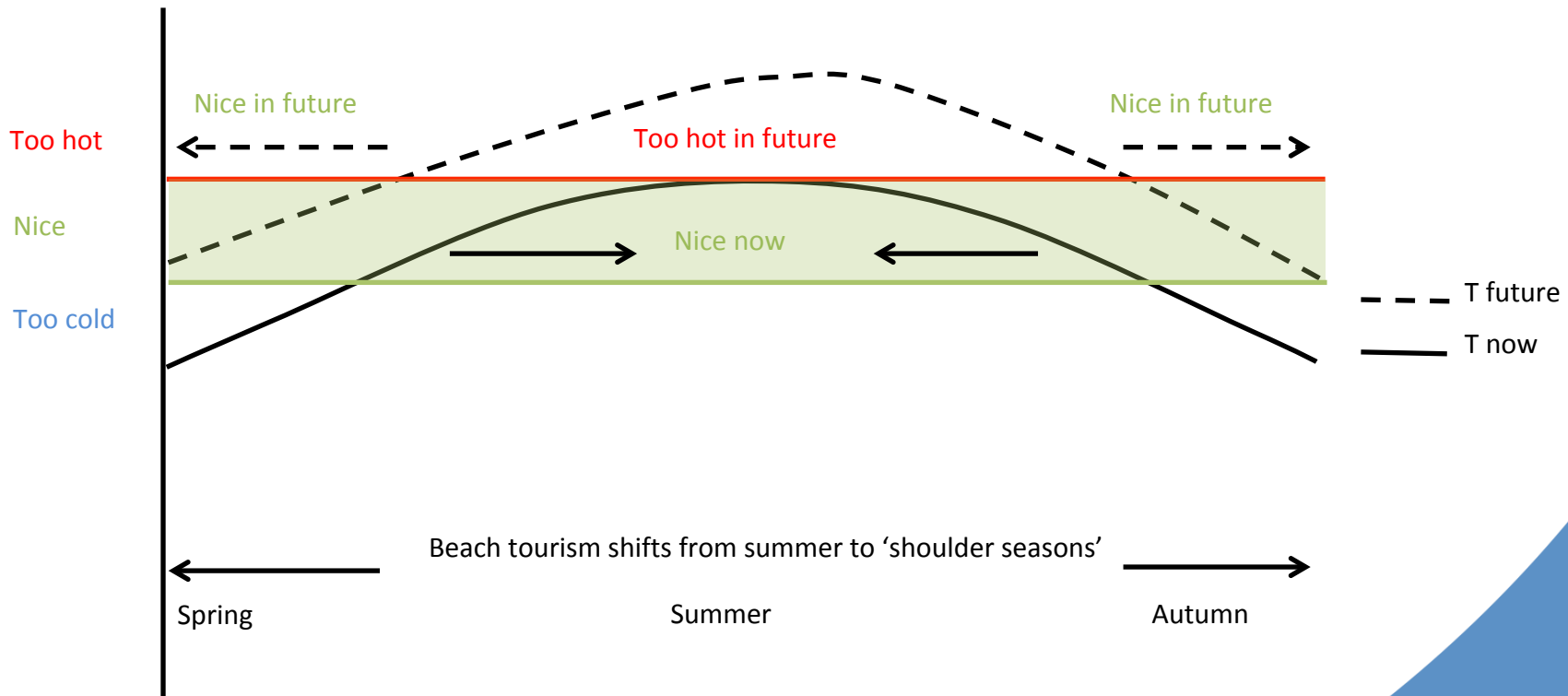


Shift to 'shoulder seasons' in the south

In the Mediterranean optimal climatic conditions may shift from the present peak demand season (June, July and August) to spring and autumn (the 'shoulder seasons'). On an annual basis, optimal climate conditions are projected to increase in Portugal, the northernmost Spanish Atlantic area and the southernmost France, whereas a general deterioration is projected for the central and eastern Mediterranean.

Climate change may even be beneficial for the Mediterranean tourist industry if it levels-out demand, reducing the summer peak, while increasing occupancy in the shoulder seasons. In the absence of such adjustments, the Mediterranean tourist industry will be among the main losers.

Temperature





Other adaptation strategies include:

- rehabilitation of beaches affected by coastal erosion
- increase of protection level against natural disasters
- construction of tourist infrastructure and resorts far from the coast
- stricter rules for buildings on/near beaches or on areas exposed to natural risks
- diversification of tourism forms for seaside resorts (e.g. business tourism)
- shift from mass/coastal tourism to special interest tourism



Tourism



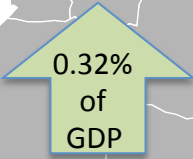
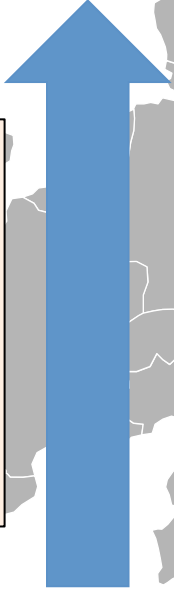
Economics

Positive effect for Europe as a whole
➤ Climate change may have a net positive effect on the overall European potential for tourism: up to 8% more nights have been estimated for 2071-2100 compared with 2005.

Change tourism flow

Impact on GDP

The overall enhancement of summer tourist comfort in north-western Europe and the overall degradation in the Mediterranean could lead to an increase of domestic holidays in the former at the expense of travelling to the latter.



Under a scenario of moderate global warming, tourism revenues may be up to 0.45 % of GDP per year lower in 2100 in the Mediterranean and 0.32 % of GDP higher in Northern Europe. Potential winners are the UK, Germany, the Netherlands, Scandinavia, Austria, Estonia, Latvia, Slovenia and Slovakia.



Tourism



Downside for the south

Downside for the south: increased stress on fresh water resources

- The annual influx of tourists increases the demand for water well beyond the normal requirements of the resident population and the capabilities of local water sources. The highest water consumption per capita and day are observed in the exclusive residential tourism areas that also have the highest percentages of gardens and swimming pools per parcel. Water demand for tourism and irrigation is highest in the main holiday season, which coincides with the driest weather.
- Tourism may contribute substantially to the degradation and destruction of water ecosystems. The availability of water supply could become a major constraint and the quantity and quality of water available may not be sufficient to satisfy future tourist demands.
- Large scale expenditure on desalinization plants will be needed, especially in some island resorts if water supplies are to be guaranteed.



