WORLD TRAVEL & TOURISM COUNCIL

Coastal & Marine Tourism

Quantifying Its Footprint And Funding Requirements For Mitigation And Adaptation

IBEROSTAR GROUP

CONTENTS

FOREWORD

Julia Simpson
President & CEO, WTTC

Coastal and marine tourism play a critical socio-economic role, globally. However, coastal destinations are under increasing threats from the impacts of climate change. We urgently need effective and targeted climate financing to protect these ecosystems and ensure that our planet continues to thrive.

WTTC believes in the power of Travel & Tourism to protect the planet. Using our research to quantify the impact of tourism, we can show the significance of coastal and marine tourism, and the funding needed to better protect those destinations.

We thank Iberostar Group for their invaluable support in making this report possible and for their ongoing commitment to the protection of coastal destinations.

A thriving ocean is essential to our sector as well as the communities, ecosystems, and livelihoods that depend on it. As a business with more than 80% of our business located and dependent on the ocean, taking action is not a choice— it's our duty. As stewards of the destinations we serve, we must champion bold action.

Coastal and marine tourism urgently needs climate investment to cut emissions and drive critical adaptation. Now is our opportunity to build a sustainable, resilient future for tourism and the planet, leaving a lasting legacy.

Gloria Fluxà Thienemann
Vice-Chairman & Chief Sustainability Officer, Iberostar Group

EXECUTIVE SUMMARY

People have always been drawn to the sea. "We cannot think of a time that is oceanless," wrote T.S. Eliot. Today, half of global tourism spending takes place in coastal and marine destinations. Millions of visitors flock to the beauty, climate, and activities they provide. This spending, worth approximately $3 trillion in 2023, creates a large economic footprint, on which countless families and workers depend.

Coastal and marine tourism directly contributed $1.5 trillion to the world's GDP in 2023. This activity supported 52 million jobs and a tax footprint of $820 billion. If you include companies in the supply chain, the sector's total contribution to GDP rises to $3.3 trillion, or 3.2% of the global economy. A total of 100 million jobs were supported, with a tax contribution worth $1.3 trillion.

This footprint is widespread. It spans islands, cities, sandbanks, and cliffs. It includes countries with very different levels of economic development, and destinations with both small, tourism-focused economies and large diversified economies.

The economic activity generated by the coastal tourism sector creates significant demand for energy and resources, resulting in a sizeable environmental footprint – particularly greenhouse gas (GHG) emissions. The sector's Scope 1 footprint (emissions from direct operations) accounted for 0.8% of world emissions in 2023. With Scope 2 emissions (from purchased energy), upstream Scope 3 emissions (from supply chain), and international transport emissions, this footprint totalled 3.0% of global emissions.

The sector is particularly vulnerable to climate change. Coastal and marine destinations face a heightened risk of erosion, flooding and extreme weather, many of which are already being felt by communities around the world.

Mitigating the carbon footprint of the coastal and marine tourism sector, as well as adapting to the threats that climate change poses, will require significant investment. We estimate the funding requirement to range from $31 billion to $65 billion a year (for the sector's Scope 1 emissions) rising to between $120 billion and $259 billion a year (including Scope 2, Scope 3, and international transport). The lower end of these ranges represents the minimum cost of mitigation alone.

Transport is the primary source of emissions for global tourism, driven by in-destination transport, international aviation, and logistics providers in the supply chain. It is estimated that transport's share of total emissions is higher for the coastal and marine tourism sector than the tourism sector as a whole, so decarbonising these activities will be critical. Reducing Scope 2 and supply chain emissions will also rely on boosting low carbon electricity in the grid, and working with suppliers to source less emissions-intensive goods.

Adaptation to climate change will involve investing to protect destinations from climate hazards. This might include investing in coastal flood defences, early warning systems, or nature-based solutions. The exact actions required will vary across destinations, with coastal cities likely to face quite different challenges to more rural areas.

Preventing and adapting to climate change in coastal and marine destinations will require coordinated effort from not only the Travel & Tourism sector, but also from governments and other parts of the private sector. Much of this will not be in the direct control of the tourism sector, but travel providers should be a key stakeholder in these efforts. This report provides a range of examples of where these actions are taking place already, and insight into what change is possible in the future.

1. Introduction

Half of global tourism takes place in coastal and marine destinations[1]. People come for their natural beauty, pristine beaches, remote islands, coastal cities, water sports, and countless other attractions.

Tourist spending in these destinations generates large economic and social benefits to the local economies in which they are based, with the coastal and marine tourism sector critical to the economies of many countries. However, it also creates an environmental footprint, including a significant contribution to greenhouse gas (GHG) emissions, which drive climate change. In addition to this, the threats posed by climate change are particularly concentrated in coastal areas, driven by concerns such as extreme weather and rising sea levels, to which the sector will need to adapt.

This report examines the value generated by the coastal and marine tourism sector, its GHG emissions footprint, the challenges it faces from climate change, and the investments that will be needed to both mitigate its emissions and adapt to climate change.

1 Northrop et al., 'Opportunities for Transforming Coastal and Marine Tourism: Towards Sustainability Regeneration and Resilience', 2022.

The report is structured as follows:

- ***Section 2*** details the economic contribution of the coastal and marine tourism sector.
- ***Section 3*** details the environmental footprint of the coastal and marine tourism sector.
- ***Section 4*** discusses the threats that climate change poses to the coastal and marine tourism sector.
- ***Section 5*** presents estimates of the funding that will be required for coastal and marine tourism destinations to mitigate their carbon footprint and adapt to climate change.
- ***Section 6*** discusses the different steps that will need to be taken to mitigate the carbon footprint of the coastal and marine tourism sector.
- ***Section 7*** discusses adaptation actions that destinations will have to take.

A summary of the methodology is available in the appendix.

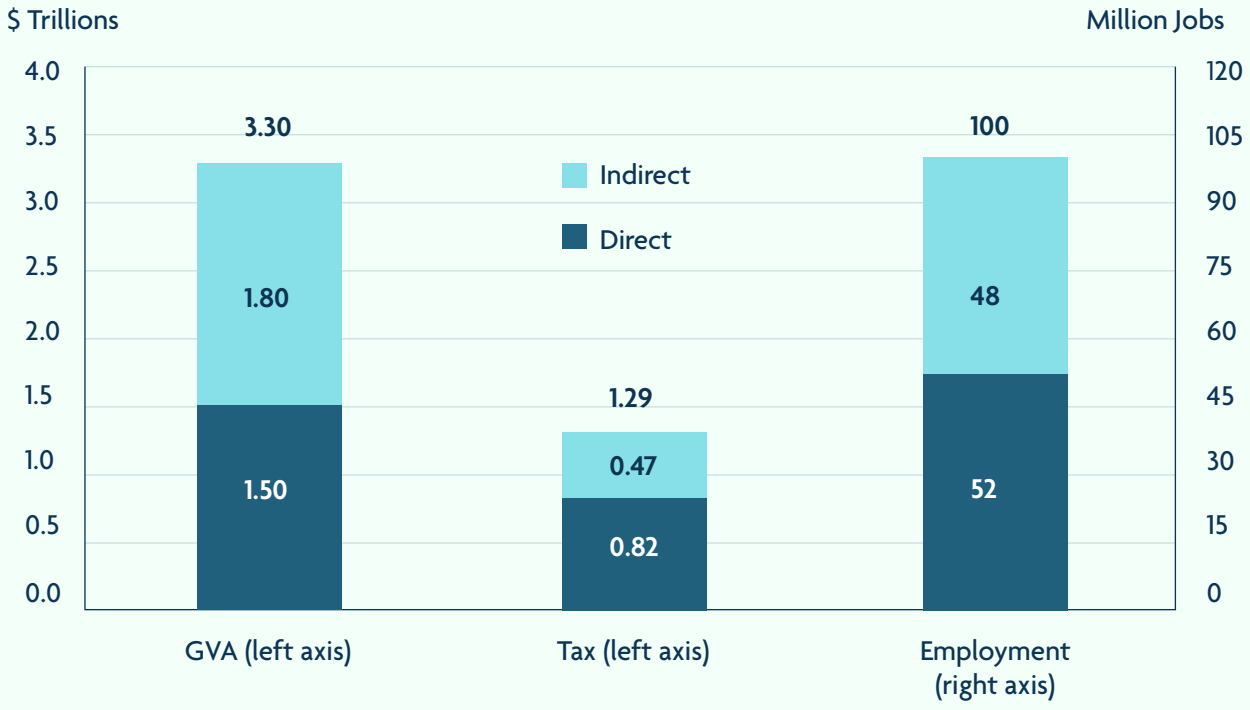
2. The Economic Contribution Of Travel & Tourism In Coastal And Marine Destinations

The coastal and marine tourism sector has a significant global economic footprint. In 2023, tourists spent approximately $3 trillion in marine and coastal destinations.

This activity, in turn, drives economic growth: the sector is estimated to have directly contributed $1.5 trillion to the world's GDP in 2023 (Fig. 1). This represents 1.4% of the global economy. An additional $1.8 trillion was generated indirectly – in the sector's supply chain – sustaining a total economic footprint worth $3.3 trillion, or 3.2% of global GDP.[2]

In 2023, coastal and marine destinations directly employed an estimated 52 million people globally, with an additional 48 million in the sector's supply chain. The 100 million people whose employment was supported by the sector represented around 3.0% of global employment in 2023. The direct activities of the sector generated an estimated $820 billion in direct tax revenues, rising to $1.3 trillion including its supply chain.[3]

Fig. 1. Economic contribution of the coastal and marine tourism sector, 2023



2. The induced economic footprint, which is the contribution made as employees spend out of their wages, is not included in this study as it does not have a commonly accepted environmental equivalent. The total footprint therefore consists of the direct and indirect (i.e. supply chain) impacts.

3. Tax estimates include income taxes, social security contributions, corporate taxes, sales taxes, taxes on production, and other taxes on products.

This footprint is global, with coastal and marine tourism representing between 40% and 52% of total tourism in each of the world's five main regions. The sector has even greater importance in some sub-regions, making up more than 80% of overall Travel & Tourism's footprint in the Caribbean, Oceania, and Southeast Asia.[4]

Coastal tourism takes place in countries at all income levels, but spending is concentrated in high income countries. This is true of many travel segments. If you look at the entire Travel & Tourism ecosystem – not just coastal tourism – high-income countries generate 64% of the sector's total economic value. In other words, for every $100 made in tourism, $64 comes from high-income countries. For coastal tourism specifically, an even bigger share – $75 out of every $100 – comes from high-income countries.

Coastal and marine destinations have a variety of characteristics, including different levels of economic development, contrasting climates, and a diverse range of natural attractions.

Many are away from population centres, including remote islands and isolated beaches, but there are also coastal destinations in urban areas including major global cities. Coastal and marine tourism can be a major part of a nation's economy, or a smaller part of a large or highly diversified economy.

The countries most dependent on the coastal and marine tourism sector tend to be Small Island Developing States (SIDS). For destinations such as Grenada, the Seychelles, the Maldives, and Aruba, the direct economic footprint of the Travel & Tourism sector represents a quarter or more of domestic GDP. This increases to more than half of the economy when the supply chain is included. Within these destinations, coastal and marine tourism is essential to creating jobs for the local population, generating tax revenues that fund public services, and offering a pathway to economic growth and greater prosperity.

4. These figures are derived by estimating country-level coastal tourism based on population proximity to the coast, then aggregating the data to the regional level.

3. The Environmental Footprint Of Coastal And Marine Tourism

The large amount of economic activity that Travel & Tourism sustains in coastal and marine destinations creates demand for energy and resources. The production of this energy – and associated Travel & Tourism products and services – results in a significant emission of greenhouse gases, driven primarily by the burning of fossil fuels. The components of this footprint are defined in the following way:

SCOPE 1
Emissions stemming from the direct activities supported by visitor spending in coastal and marine tourism destinations (excluding international transport). [5]

SCOPE 2
Emissions associated with generating energy (primarily electricity) supplied to the sector's direct activities.

SCOPE 3
(Upstream) – Emissions generated by the sector's supply chain.

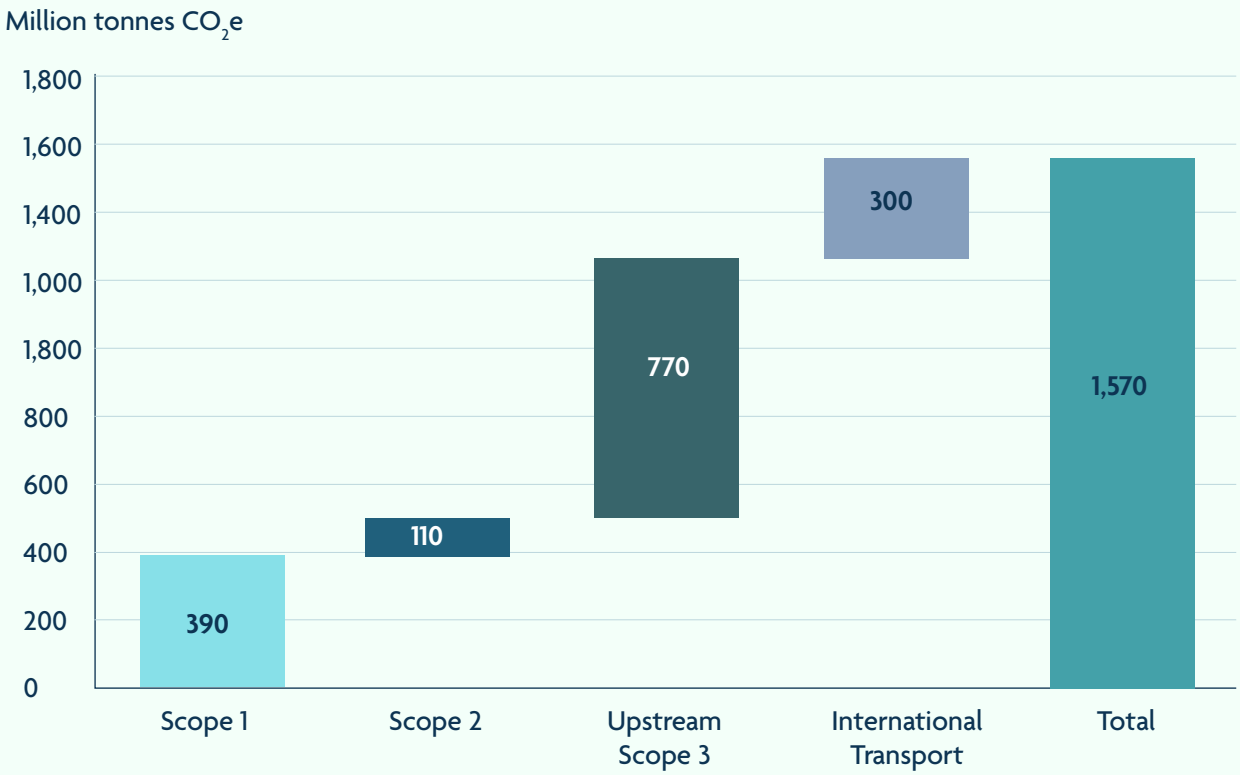
INTERNATIONAL TRANSPORT
Consisting of emissions from aviation and cruises.

We estimate that the carbon footprint of the coastal and marine tourism sector totalled 1.57 billion tonnes of CO_2-equivalent (CO_2e) GHG emissions in 2023 (Fig. 2). This represented 3.0% of global GHG emissions in 2023 – a footprint that is similar in scale to the sector's contribution to global GDP.

A quarter of this, totalling an estimated 390 million tonnes of GHG emissions, was generated through the direct activities supported by visitor spending within destinations (Scope 1 footprint, excluding international transport). The sector's Scope 2 footprint totalled an estimated 110 million tonnes of CO_2e. Upstream Scope 3 emissions represents the largest source of emissions for the sector. It totalled an estimated 770 million tonnes of CO_2e. Finally, emissions from international transport totalled 300 million tonnes of CO_2e.

5. International transport is counted separately because our methodology is based on national inventories, which do not account for emissions from international flights. For a full explanation, see our methodology section.

Fig. 2. Estimated GHG emissions footprint of the coastal and marine tourism sector in 2023, by Scope



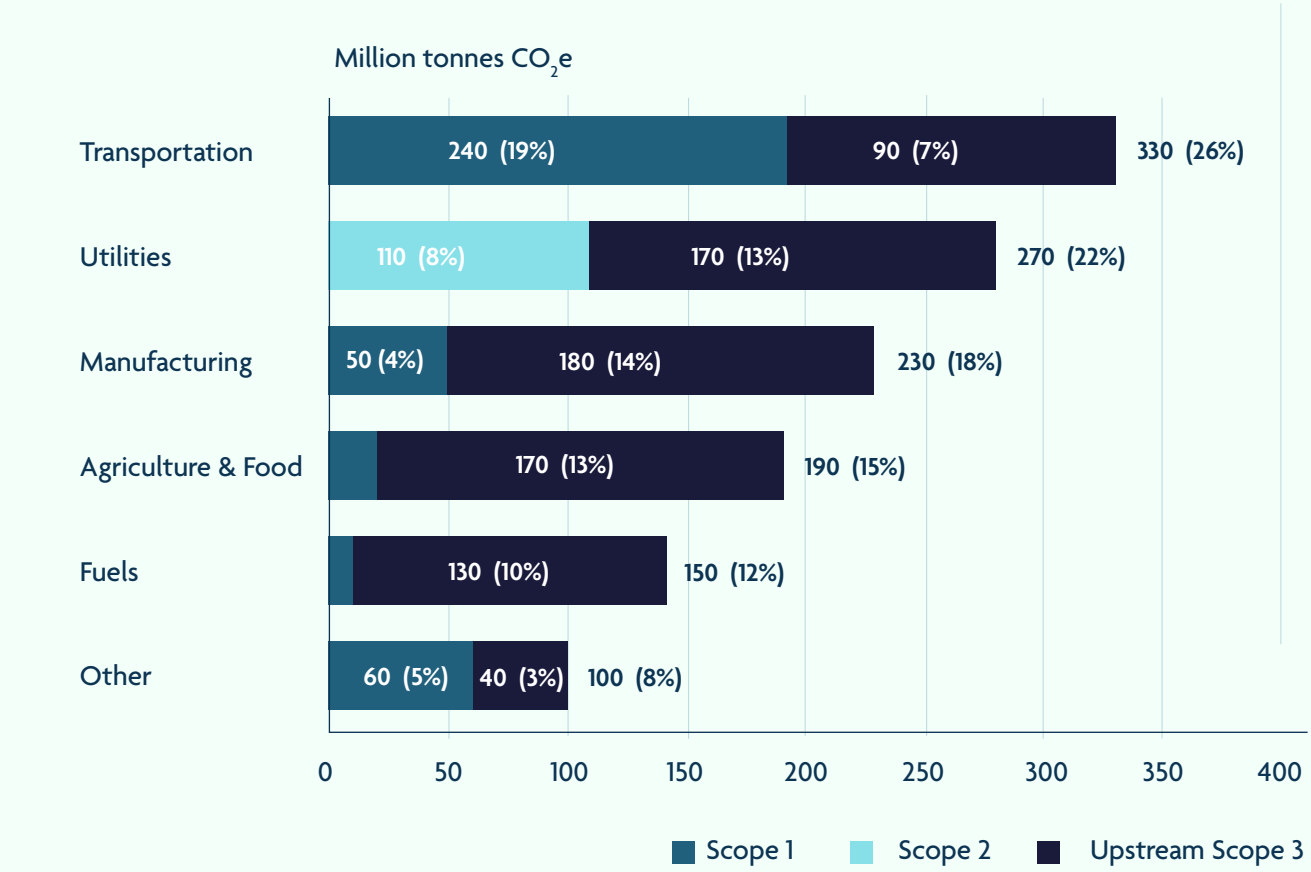
The carbon footprint of the coastal tourism sector is comprised of five main components: transport, utilities, manufacturing, agriculture, and fuel. Of these, transport accounts for the greatest share of emissions, producing an estimated 330 million tonnes of CO_2e in 2023 (Fig. 3). This includes the emissions from cars, trains, and domestic aviation, but not international flights.[6] Most of these are Scope 1 emissions. The rest are produced by transport providers supplying goods to the sector. Domestic transport accounts for 26% of the sector's emissions. If international transport is included, the share of transport grows to 41% of the coastal and marine tourism sector's emissions.

For comparison, across tourism as a whole – not just coastal destinations – transport represents 37% of the wider Travel & Tourism sector's global carbon footprint.

Utilities are the second-largest source of emissions in coastal and marine tourism. This includes emissions from electricity used by the industry directly (Scope 2 emissions) – for example, for air conditioning in a seaside hotel – as well as from utilities in the supply chain, such as a business providing a laundry service for the hotel.

6. Here, the "transport" category includes emissions from vehicles carrying tourists, domestic marine tourism, domestic flights, and the heating and water used by transport firms for their offices and headquarters.

Fig. 3. Sectoral breakdown of the coastal and marine tourism sector's GHG emissions in 2023 (excluding international transport) and shares of the sector's total emissions



Numbers may not sum to totals due to rounding

4. Threats Posed By Climate Change

Coastal destinations are disproportionately exposed to climate risk, which will affect both destinations themselves and the people who visit them. As the effects of climate change grow, Travel & Tourism providers in coastal destinations face significant threats and associated costs.

There are both direct and indirect effects of climate change on coastal tourism. For example, a beach destination might directly face a loss in tourism spending due to coastal erosion, resulting in fewer visitors per year. This could reduce both the long-term desirability of these destinations and the prices tourism businesses can charge for activities or accommodation.[7]

Increases in extreme weather events also have a direct impact. For example, research from the Cambridge Institute for Sustainability Leadership finds that a sea level rise of one metre would damage between 49% to 60% of the Caribbean region's tourist resort properties, lead to the loss or damage of 21 airports, and inundate land around 35 ports.[8] Another study estimates that, as a result, arrivals to the Caribbean could fall by about 1% per year because of climate change, potentially costing the region over $100 million in lost tourist spending per year. [9]

The indirect consequences can be just as harmful. Rising temperatures might induce labour shortages, unstable water and power supplies, or disruption to food and supply deliveries. There is also an overall impact on the destination's economy, such as reduced economic activity due to transport disruptions. This can have long-term effects on the health and education of residents who are both workers as well as beneficiaries of the Travel & Tourism sector.

Without adaptation measures, Small Island Developing States will be especially vulnerable to this climate 'ripple effect'. It has already begun: between 2008 and 2017, around 320,000 people in the Pacific region were displaced from their homes by climate and weather-related disasters.[10] In some cases, disaster-related economic losses are believed to have reached as high as 200% of the size of a national economy, as was seen when Hurricane Maria destroyed vast swathes of Dominican infrastructure in 2017.[11]

Economic exposure to climate risk is particularly high in urban coastal destinations. Nearly 40% of the global population lives within 100km of coastlines, facing a growing risk of rising sea levels, coastal erosion, extreme weather, droughts, and the loss of critical ecosystems.[12] Analysis from C40 Cities estimates that by 2050, 800 million people will live in cities where sea levels could rise by more than half a metre, affecting places such as Miami, Guangzhou, New York, Bangkok, Jakarta, and Mumbai.[13] Climate risks threaten not only the economic infrastructure of these destinations, but the transport nodes that connect people to onward destinations – thereby endangering the wider economies of these regions.

7. CISL, 'Climate Change: Implications for Tourism. Key Findings from the Intergovernmental Panel on Climate Change Fifth Assessment Report', 2014.

8. Ibid.

9. Moore, WR. 'The impact of climate change on Caribbean tourism demand', 2009.

10. International Organization for Migration (IOM), 'Climate Change and Migration in Vulnerable Countries', 2019.

11. International Monetary Fund (IMF), 'Climate Resilience'.

12. Laino, E. and Iglesiad, A. 'Multi-hazard assessment of climate-related hazards for European coastal cities' , 2024.

13. C40 Cities, 'Sea Level Rise and Coastal Flooding', 2018.

5. Climate Funding Requirements

The coastal and marine tourism sector faces the dual challenge of mitigating its GHG emissions and adapting to build resilience to climate change. The potential costs of climate change to the coastal and marine tourism sector are immense. Whilst mitigating climate change will be important, the causes of climate change are global, meaning that individual destinations may find it hard to make a meaningful difference through mitigation alone. Simultaneous efforts to adapt to a changing climate will be required, including localised action based on a destination's individual needs.

To understand the magnitude of these challenges, it is important to examine and contextualise the scale of investment that may be required. To do so, this analysis draws on a range of estimates from respected international sources. Two key sources consider the overall scale of funding needed:

- The International Energy Agency (IEA) estimates that $4 trillion of clean energy investment will be required each year by 2030.[14] This represents funding that will be required specifically to mitigate the carbon footprint of energy production.

- The Climate Policy Initiative (CPI) conducted a top-down synthesis of different estimates of climate financing requirements. This analysis estimates that annual climate finance flows must increase to $8.5 trillion per year by 2030, including both mitigation and adaptation needs.[15]

Scaling these estimates to the size of the GHG emissions footprint of the coastal and marine tourism sector allows us to identify how much investment will be required for the sector to do its part in mitigating and adapting to climate change. Focusing on the direct activities that are sustained by tourist spending within coastal destinations, the IEA and CPI analyses imply that annual investment in the range of $31 billion (mitigation

14. International Energy Agency (IEA), 'Net Zero by 2050. A roadmap for the global energy sector', 2021.

15. Climate Policy Initiative (CPI), 'Top-down Climate Finance Needs', 2024.

only) to $65 billion (mitigation and adaptation) will be needed. Including the total GHG emissions footprint of the sector, we estimate that between $122 billion (mitigation only) and $259 billion (mitigation and adaptation) of investment will be required.

Another perspective on this analysis comes from the WTTC's Net Zero Roadmap for Travel & Tourism. This suggests that mitigation and adaptation funding should total between 2% and 3% of companies' revenues.[16] Scaling this according to coastal and marine tourism spending implies funding in 2023 worth $120 billion to $180 billion, including all Scopes of its footprint.

Mitigating and adapting to the threat of climate change requires large-scale action across a broad range of sectors. Using all of the available estimates, the overall level of investment required for the coastal and marine tourism sector would be **between $120 billion and $259 billion per year going forward**. These estimates are based on the size of the coastal tourism sector in 2023 and would therefore grow in line with any change in its environmental footprint or inflation.

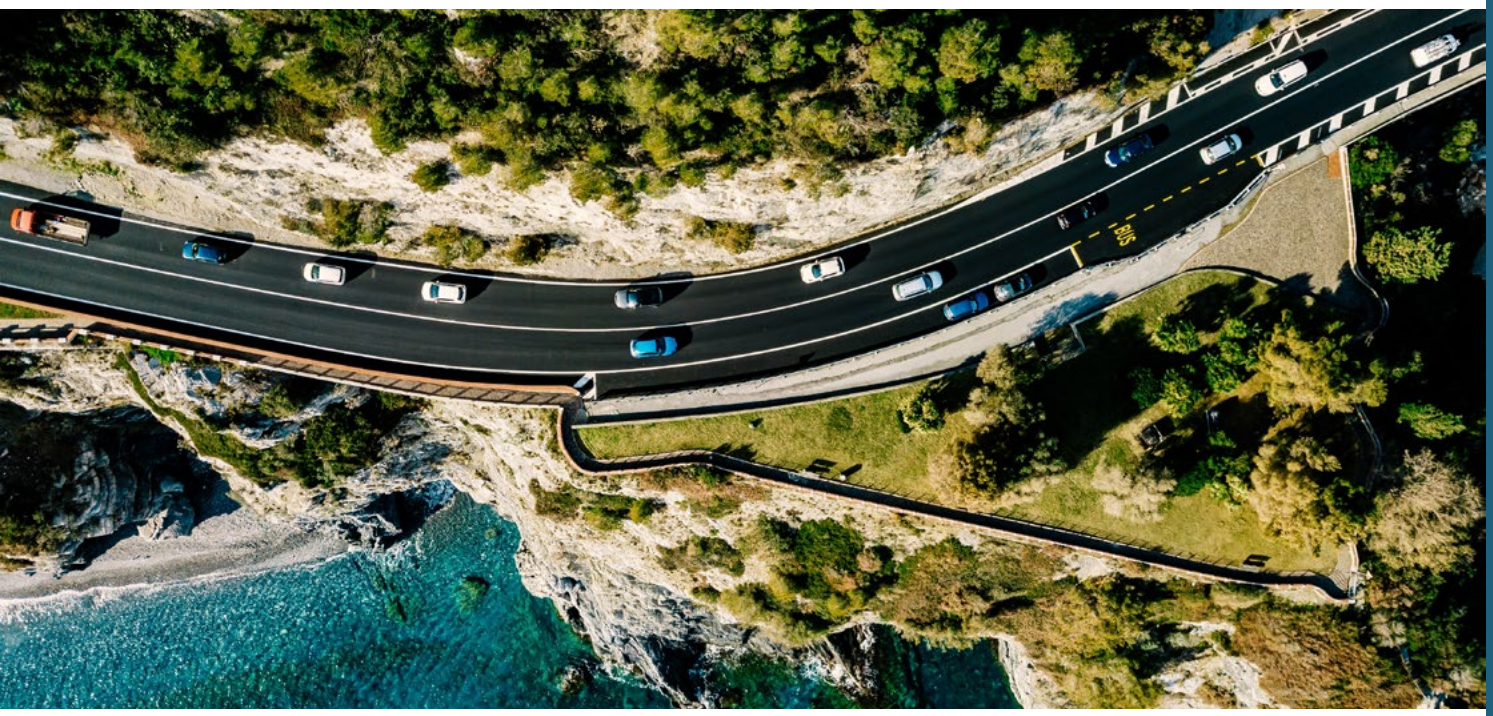
These multi-billion-dollar figures are huge and can be hard to conceptualise. To put them in context, we can compare these numbers to the amount of tax paid by the coastal tourism sector each year to governments around the world. The top end of this estimate – $260 billion – is roughly 20% of the annual tax revenue generated by the global coastal tourism sector. This does not mean that mitigation and adaptation funding can be paid for with tax revenues, given the other spending commitments governments have. A mix of public and private financing will be required to meet the challenge.

This analysis illustrates the potential scale of the investment required by the coastal and marine tourism sector. Yet, despite the scale of the global challenge for all sectors of the economy, funding requirements for the energy transition and climate change mitigation are not being met globally. The CPI analysis estimates that only one-seventh of the required investment is currently being made, highlighting the need for further investment.[17]

Fig. 4. Estimated annual funding requirements for mitigation and adaptation investment for the coastal and marine tourism sector, in 2023 prices

Source	Coverage	Footprint	Implied funding
IEA	Mitigation	Scope 1	$31bn
		Total	$122bn
CPI	Mitigation and adaptation	Scope 1	$65bn
		Total	$259bn
WTTC	Mitigation and adaptation	Total, low estimate	$120bn
		Total, high estimate	$180bn

16. WTTC, 'A Net Zero Roadmap for Travel & Tourism - 2nd Edition', 2021.
17. Climate Policy Initiative (CPI), 'Top-down Climate Finance Needs', 2024.



6. Mitigating The Sector's Carbon Footprint

To keep global warming to no more than 1.5°C – as called for in the Paris Agreement – emissions need to be reduced by 45% by 2030 (compared to 2010 levels) and reach net zero by 2050.

Coastal tourism destinations will have to make significant investments to do their part in reaching these targets. This section of the report examines the components of the coastal and marine tourism sector that should be prioritised for decarbonisation, as well as examples of effective decarbonisation efforts within the sector. The analysis features evidence on the actions required for economy-wide decarbonisation, as outlined in the IEA Net-Zero Emissions by 2050 analysis, which seeks to achieve a 35% reduction in global GHG emissions between 2022 and 2030.[18]

As the primary source of the coastal and marine tourism sector's emissions globally, transport will need to be the biggest priority for decarbonisation. Transport providers should focus on finding and adopting alternative sources of energy to oil.[19]

For land transport, which is the main contributor to Scope 1 emissions, there are two low-carbon alternatives: electric vehicles and public transport. To charge electric cars, drivers also depend on access to low carbon electricity in the grid. From 2022 to 2023, the holiday car rental company, Hertz, had over 90,000 rideshare drivers who rented an electric vehicle, logging over 750 million miles.[20] One challenge is that EV adoption rates vary significantly in different parts of the world. Europe has roughly twice the electric vehicle adoption rate of the US, despite having similar-sized economies.[21]

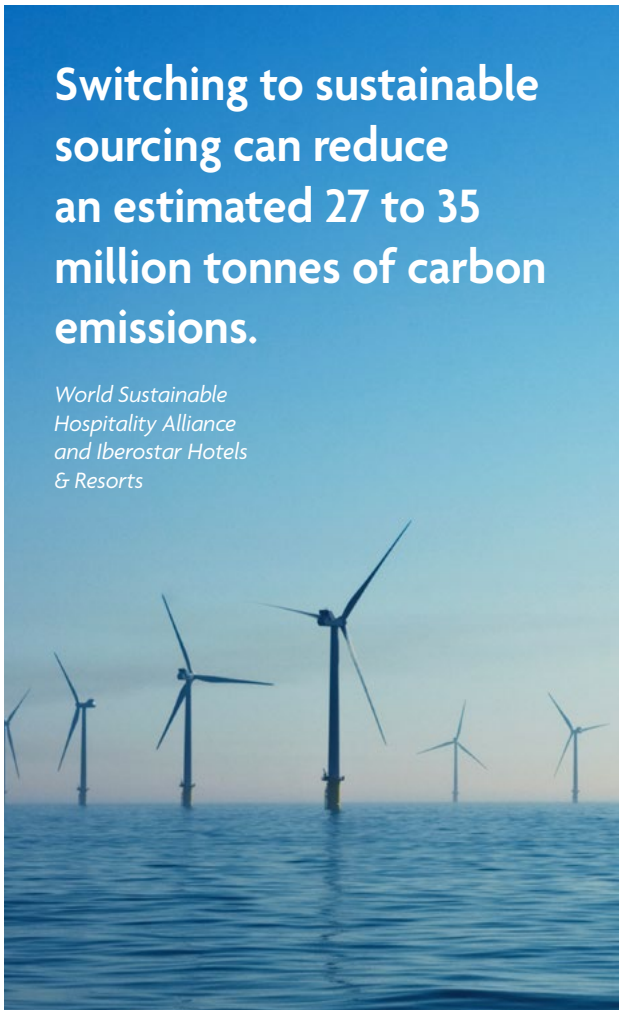
18. International Energy Agency (IEA), 'A renewed pathway to net zero emissions', 2023.

19. International Energy Agency (IEA), 'Net zero by 2050: A roadmap for the global energy sector', 2021.
20. Hertz, Sustainability Impact Report, 2023.
21. International Energy Agency (IEA), 'Global EV outlook 2024: Moving towards increased affordability', 2024.

The solution for international transport is different. Large aircraft and cruise ships are much harder to electrify, and decarbonisation will largely depend on the transition to cleaner fuels (made from renewable feedstocks, rather than fossil fuels). These alternative fuels are not yet being produced on a large scale, but there are some small-scale pilot initiatives. In 2023, for example, the Royal Caribbean Group partnered with the Port of Barcelona and Port of Rotterdam to conduct a 12-week test of biofuels.[22] The trial was successful, demonstrating the biofuel as a viable 'drop in' alongside traditional hydrocarbon fuels. In aviation, Dallas Fort Worth International Airport has introduced a programme to turn 100% of the used cooking oil from its kitchens into Sustainable Aviation Fuel (SAF) and renewable diesel. The airport was one of the first in the US to partner with Neste, a renewable fuel provider, to significantly reduce the carbon footprint of its flights.[23]

The next significant task is decarbonising the grid, and the electricity coastal Travel & Tourism providers use both directly and in their supply chains. Here, there is significant variation between regions. In Southeast Asia, Thailand's grid emissions factor is a quarter lower than that of the Philippines and more than two-fifths lower than Indonesia, driven largely by Thailand's lower dependence on coal.[24] In other regions the deployment of renewable energy has been rapid, highlighting the opportunities for further decarbonisation. The IEA roadmap identifies the use of clean energy for electricity and heating as the primary global requirement for decarbonisation, highlighting the extent to which this is an issue that goes far beyond the Travel & Tourism sector or coastal economies.

The coastal and marine tourism sector's Scope 3 footprint also includes emissions from industries such as agriculture, manufacturing, and fuel production. These emissions are largely generated by companies outside the direct control of the sector, making it important for businesses in the sector to work proactively with their suppliers to develop sustainable procurement options. For example, the Decarbonizing Hotel Food Systems[25] white paper, produced by the World Sustainable Hospitality Alliance and Iberostar Hotels & Resorts, identified sustainable sourcing as the most significant of the four levers for mitigating the environmental impact of hotel food systems. Specific solutions include reducing meat dishes and providing more plant-rich alternatives and sourcing ingredients produced using environmentally friendly practices. Switching to sustainable sourcing can reduce an estimated 27 to 35 million tonnes of carbon emissions.



22. PR Newswire, 'Royal Caribbean Group drives forward alternative fuel use with the successful completion of biofuel testing', 2023.
23. Dallas Fort Worth, 'DFW International Airport ESG Report', 2023.
24. https://www.iea.org/countries/
25. Iberostar Group and the World Sustainable Hospitality Alliance, 'Decarbonizing Hotel Food Systems', December 2024.

Destinations have different mitigation options available to them depending on the magnitude and nature of their GHG emissions as well as the cost, suitability, and scalability of solutions. Signatories of the Glasgow Declaration on Climate Action in Tourism, for example, are required to submit and deliver climate action plans that will guide them towards their goal of net zero emissions. But each will have different challenges and a different decarbonisation strategy.

In the UK, Visit Scotland's plan focuses on measuring and reporting GHG emissions, investing in renewable energy, and improving energy efficiency. The organisation is also facilitating stronger links between Scotland's tourism and transport sectors to introduce new low-carbon travel options, and to make existing options more attractive and accessible to tourists and residents. [26]

In Mauritius, the Ministry of Tourism's decarbonisation efforts have centred on food production (which accounts for about 27% of the GHG emissions associated with hotels and restaurants on the island) as well as electricity generation (18% of emissions) and landfill (8% of emissions).[27] This variation illustrates how priorities differ across destinations based on the nature of their environmental footprint and the actions they are able to take.

Reducing greenhouse gas emissions requires action from many actors. Travel & Tourism businesses operating in coastal and marine destinations only have direct control over a small portion of their footprint. Other requirements, such as reductions in supply chain emissions, decreasing grid emissions and decarbonising transportation networks will require action from governments, development organisations and industry at the local, national, and international levels. The Travel & Tourism sector in coastal destinations is an important stakeholder in the decarbonisation process given the extent to which it relies on other sectors to succeed, and it can use its position to try and drive wider change.

26. Visit Scotland, 'Destination Net Zero Climate Action Plan', 2022.
27. UNEP and Mauritius Ministry of Tourism, 'Action Plan for Low Carbon and Resource Efficient Accommodation in Mauritius', 2019.

7. Adapting To The Effects Of Climate Change

We cannot know how far global temperatures will continue to rise. But the consequences of the earth getting hotter are already with us. Talk to any farmer, firefighter, or park ranger. Talk to people who live on islands or along the world's coastlines. Flooding patterns have changed. Fish and bird species have migrated. Houses have fallen into the sea.

There is no perfect way to adapt to these effects. Each destination has its own challenges. It might be planting a new type of crop, putting up flood barriers, or installing an early warning system.[28] But one thing is certain: we can always learn from what others are doing.

Solutions in nature

Some destinations are adopting nature-based solutions. These projects are increasingly seen as a win-win for both climate mitigation and adaptation, often with additional benefits for local people and habitats. A good example comes from Nai Nang, in Thailand, and the Mangrove Action Project. The scheme is a partnership between a global hotel group, a mangrove conservation charity, and representatives of the local community. [29] Mangroves can protect destinations from coastal erosion, as well as restoring nature and absorbing carbon dioxide from the atmosphere, and potentially making destinations more attractive to visitors. In Nai Nang, the project has the added benefit of providing the community with sources of income from beekeeping.

28. Magnan, A.K., Bell, R., Duvat, V.K.E. et al. 'Status of global coastal adaptation'. Nature Climate Change, 2023.

29. Global Commission on Adaptation, 'Three ways tourism can support climate adaptation', 2024.

Beekeeping has additional advantages in maintaining the biodiversity of the area through pollination. Honey produced by the community is sold in hotel shops, including products further up the value chain such as honey-based soaps.

Another example is Iberostar's coastal dune restoration initiative[30]. These sand dunes act as natural buffers against flooding and stop sand from washing away. They are also home to lots of special plants and animals. Realising the critical role that coastal dunes play in the adaptation of coastal destinations, Iberostar implemented dune restoration and monitoring projects in places where they operate. For instance, in Mexico, they built a special plant nursery to grow coastal dune plants and supported the recovery of beaches through reintroduction of native and local species. In 2023 alone, they grew almost 4,000 plants.

Another example is the collaboration between Copa Airlines and the conservation sector in Panama. The airline's main hub in Panama is Tocumen International Airport, right in the Tocumen river basin. In recent years, the basin has been prone to flooding, putting the airport at risk. In response, Copa Airlines has helped to set up Panama's Bay Wetlands Project. Local wetlands, like the sand dunes, protect against flooding and other climate risks. The programme includes training and education initiatives for local schools and community leaders, to raise awareness of the importance of the wetlands and limit the rate of new constructions in the area.[31]

Adaptation in cities

Cities, and the coastal tourism sectors that operate within them, are often at the forefront of exposure to physical climate risks and are adapting in many different ways. One example of a city doing this successfully is Miami. In 2023, Travel & Tourism generated approximately $30 billion in overall economic impact, accounting for 9% of overall economy in Miami-Dade county.[32] Given the high economic exposure to climate risk, there is significant emphasis in the city-wide adaptation plan on investing in resilient and smart infrastructure, protecting and enhancing the waterfront and promoting adaptative neighbourhoods and buildings. The plan also focuses on data-driven approaches to inform, prepare, and engage businesses, including those in the tourism sector. The city's climate action plan covers a wide range of risks such as coastal flooding and extreme heat.[33]

Another good example comes from Rio de Janeiro. In recent years, Rio has taken a holistic approach to climate adaptation by linking the city's Sustainable Development Plan to its Climate Action Plan.[34] The city's adaptation plan outlines planning solutions to address climate hazards such as rising sea levels, landslides, flooding, heat islands and heat waves.[35] The response is wide-ranging, with components covering sustainable urban mobility, land use, improved health, conservation of natural ecosystems, strategic infrastructure and strengthening institutional and technical capacity. While a lot of the measures are not directly linked to actions within the tourism sector, the plan recognises the importance of city-wide resilience, which will serve to protect the sector.

30. Iberostar, 'Wave of Change 2023 Year in Review', February 2024.
31. UNFCCC, 'Private Sector Initiative actions on adaptation', 2013.
32. Greater Miami Convention & Visitors Bureau, 'Visitor Industry Overview 2023', 2024.
33. City of Miami, 'Miami Forever Climate Ready', 2020.
34. C40 Cities, 'Rio de Janeiro has aligned sustainable development and climate action', 2019.
35. Centro Clima/COPPE, 'Climate Change Adaptation Strategy for the City of Rio de Janeiro', 2016.

Island adaptation

In many island nations, adapting to climate threats is an ongoing process. For example, the Maldives is a low-lying island nation with nearly 75% of the land less than a meter above the sea level, which creates a significant risk from coastal flooding. This threatens the tourism sector, with its direct activities accounting for 25% of total national GDP, rising to 49% once its supply chain is included. As part of the United Nations' 'Early Warnings for All' initiative, the country strengthened its overall early warning systems. The Maldives has also created a national early warning systems roadmap to ensure multi-hazard early warnings for all by 2027.[36] The Maldivian government has invested in significant coastal defences, like sea walls, to address coastal inundation, and is investigating other approaches such as beach nourishment techniques and efforts to countering coral bleaching.[37]

Balancing investment in mitigation and adaptation

Any climate funding must balance the need to adapt to the effects of climate change and the task of reducing carbon emissions in the first place. Adaptation efforts will need to address the specific threats that destinations face as well as commitments to reduce GHG emissions. If they can achieve this balance, well-managed coastal destinations can sustain the value that the Travel & Tourism sector creates while driving positive change for nature.

36. United Nations, 'Paradise Prepares: Maldives Pioneers Climate Resilience with Early Warning Systems', 2024.
37. Ritika V Kapoor, 'Sea wall in the Maldives and its sustainability', 2020.

Appendix: Methodology

Using Existing Travel & Tourism Footprinting

The analysis in this report estimates the economic and environmental footprint of the coastal and marine tourism sector by making use of the existing quantification of the global economic and environmental footprint of Travel & Tourism produced by Oxford Economics for the World Travel & Tourism Council (WTTC) annually.[38] This existing analysis uses a demand-led approach, tracing the footprint of Travel & Tourism-linked spending, whether by domestic travellers, inbound tourists, businesses, or governments. The analysis encompasses tourists who travel for both personal and leisure reasons, as well as for business.

The framework uses spending estimates and economic data to analyse the economic footprint of Travel & Tourism within each country. For environmental impacts, the framework estimates the direct GHG emissions footprint of the sector, as well as capturing the impacts occurring within the supply chains that support Travel & Tourism. These supply chains are modelled using our Global Sustainability Model (GSM),[39] an environmentally extended input-output model that maps the structures of supply chains between countries and sectors around the world.

Economic and environmental footprints are estimated for 185 countries and territories. Our modelling uses economic and environmental datasets that are global in scope, but the comprehensive coverage necessarily involves estimation and extrapolation in countries where data are less detailed, less timely, or unavailable. This requires applying regional averages or using data from comparable countries as a proxy.

Estimating the coastal and marine tourism sector's share of total tourism

We calculated the footprint of the coastal and marine tourism sector by estimating the share of each country's tourism sector that is coastal (known as the "coastal share"). The primary source of evidence used came from Northrop et al. (2022), who estimates that the coastal and marine tourism sector makes up 50% of all global tourism spending.[40]

38. WTTC, 'Travel & Tourism's Global Footprint', 2024.
39. Ibid.
40. Northrop et al., 'Opportunities for Transforming Coastal and Marine Tourism: Towards Sustainability Regeneration and Resilience',

Recognising that the coastal share will vary between countries, countries' coastal shares were scaled based on the proximity of their populations to the coast. We used data on the share of countries' populations that live within 100km of the coast, produced by the Center for Integrated Earth System Information (CIESIN) at Columbia University, accessed through Research Watch.[41] The 100km threshold was chosen as this threshold leads to a global coastal share that most closely mirrors the 50% share of tourism spending.

The implied shares of tourism were then applied to the country-level economic and environmental footprint metrics to estimate the footprint of the global coastal and marine tourism sector.

This high-level approach is useful for estimating an indicative value to give scale to the sector and its footprints. The methodology could potentially be further refined by using alternative research techniques, or by focusing on specific countries where more data is available.

Estimating Mitigation And Adaptation Investment Requirements

The value of investment required for coastal and marine tourism destinations to mitigate their GHG emissions footprint and adapt to climate change were estimated based on three sources. Two of the sources, created by the IEA and CPI respectively, provide global estimates for spending requirements.[42,43] These were scaled to estimate the share required for the coastal and marine tourism sector based on the proportions of global emissions that come in the sector's Scope 1 and total footprints.

The other source, created by WTTC, provides an estimate of the share of companies' revenues that should be spent on mitigation and adaptation.[44] The implied spending required for the whole of the coastal and marine tourism sector was estimated based on total tourist spending in 2023. As this spending will drive all the direct and supply chain activities of the sector, this investment is deemed to cover the sector's entire footprint.

41. Center for International Earth Science Information Network 'National Aggregates of Geospatial Data Collection: Population, Landscape, And Climate Estimates, Version 3 (PLACE III)', Columbia University, 2012.
42. IEA, 'Net Zero by 2050. A roadmap for the global energy sector', 2021.
43. CPI, "Top-down Climate Finance Needs", 2024.
44. WTTC, "A Net Zero Roadmap for Travel & Tourism", 2021.

Acknowledgements

Authors & Contributors

Christopher Imbsen,
VP Research & Sustainability,
World Travel & Tourism Council

Nejc Jus,
Director of Research,
World Travel & Tourism Council

Chok Tsering,
Research Analyst,
World Travel & Tourism Council

Rebecca Whitehead,
Sustainability Manager,
World Travel & Tourism Council

Matthew Tinsley,
Lead Economist, Economics & Sustainability,
Oxford Economics

Shilpita Mathews,
Senior Economist, Economics & Sustainability,
Oxford Economics

Erika Harms,
Global Sustainability Director,
Iberostar

Nicholas Komisarjevsky,
Sustainability Resource Curator,
Iberostar

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Designer

Sadhbh McCarthy
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