# ESPO Environmental Report 2025

EcoPortsinSights 2025

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# FOREWORD

*By ESPO Chair*
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It is very recomforting to read this year's environmental report, not only because of the positive results in terms of environmental performance, but also because of the new indicators that have been added, broadening further the level of transparency that EcoPorts members are displaying.

Let me start with the positive results. As you will read in the following pages the Environmental Management Index is reaching a new peak value. We also see positive trends looking at the different externalities ports are monitoring. I note amongst others that a big majority of ports are monitoring the carbon footprint, some of them in a very comprehensive way, also covering scope 3 emissions. Moreover, most participating ports are publishing now an annual environmental report, which again shows a certain openness of ports towards their environmental performance. Finally, I think that the increased attention for climate resilience is very relevant and aligns well with the Commission's priorities.

But I think we can be particularly satisfied with this environmental report since it brings in some new elements, which are of particular interest from a policy perspective. First there are first figures showing the readiness of ports to supply alternative fuels. Second, some indicators have been added to assess the commitment of ports towards GHG and/or emission reductions.

Of course, traditionally, the table showing the top 10 of environmental priorities remains the one that many are looking for in this report.

Overall, for me, this report shows that no crisis can remove the attention from, or hamper the progress to be made on environmental sustainability.

This report builds on the data gathered from the EcoPorts members and let me thank all participating ports for their active engagement and continuous willingness to help us measure the environmental profile of Europe's ports. We are pleased that many ports are part of EcoPorts, especially considering the increasing reporting obligations introduced in recent years. Four countries are particularly active in this network: Spain, United Kingdom, Germany and the Netherlands. In total, 18 European countries are represented. My wish for next environmental report is to improve further the representativity of this report by having ports from all maritime member states participating. The participation of ports in EcoPorts is essential for obtaining high-quality data, which in turn helps ESPO to shape future EU policy.

I would like to thank Marti, Chris and Rosa Mari, the authors of this report, as well as the ESPO secretariat, in particular Tim and Belén for their work and engagement for EcoPorts.

I hope that this report is used and consulted both by policy makers and hope that ports themselves are encouraged by the positive results and incentivised by the less positive results to further step up their efforts.

# INTRODUCTION

Welcome to the ESPO Environmental Report 2025, the latest edition of the European Sea Ports Organisation's (ESPO) annual review of environmental performance and sustainability efforts in European ports. This report continues to serve as a key instrument for monitoring environmental progress and performance across the port sector, offering insights into trends, challenges, and opportunities in sustainable port development.

The Environmental Report builds on data collected through the **EcoPorts Self-Diagnosis Method (SDM)**, a key pillar of the EcoPorts Network. The SDM remains a widely recognised tool that enables ports to assess their environmental management frameworks, benchmark their practices, and progress toward certification under the **Port Environmental Review System (PERS)**, the only International Quality Standard of Environmental Management System (EMS) dedicated to the port sector.

Since its launch in 1997, EcoPorts has played an important role in shaping environmental management in the port sector. In its early years, the initiative was primarily driven by voluntary action, with ports proactively sharing best practices and implementing improvements beyond regulatory requirements. Today, European regulation has significantly evolved, and ports dedicate considerable time and resources to ensuring compliance with an increasingly complex legislative framework. The experience and tools developed within EcoPorts continue to support ports in meeting these challenges, helping them to combine compliance with innovation and continuous improvement.

European ports continue to play a critical role in enabling the continent's economic connectivity, continuity of trade, and maritime mobility. At the same time, the urgency of addressing climate change, protecting marine biodiversity, improving air and water quality, and promoting energy transition remains a top priority. In this context, ports are not only adapting to new regulatory and societal expectations but are also leading innovation by investing in green infrastructure, low-emission technologies, and circular economy solutions.

The 2025 edition includes data from 77 ports across 18 European countries, all active members of the EcoPorts Network *(www.ecoports.com)*. For Ports outside Europe, access to the EcoPorts tool and standard is accessible via www.ecoslc.eu. Their collective contributions form the foundation of this report and reflect a shared commitment to improving environmental governance and performance.

The structure of the report follows the established framework used in recent editions to ensure comparability over time, while incorporating updated indicators. For the first time, the report includes a dedicated set of indicators assessing ports' commitments and progress toward reducing greenhouse gas (GHG) and air pollutant emissions.

This year's report includes six main sections:

A. **Environmental Management Indicators:** An overview of the environmental governance models adopted by ports, including certifications, environmental policy, responsibilities, and communication practices. This section features the Environmental Management Index (EMI), a composite metric designed to track maturity in environmental governance.

B. **Environmental Monitoring Indicators:** This section focuses on the degree to which ports monitor environmental aspects such as air and water quality, port waste, noise, and energy consumption. It also examines how ports are responding to climate risks, including the adaptation of existing infrastructure and the integration of resilience measures into new developments, reflecting the sector's increasing attention to climate-related challenges.

C. **Top 10 Environmental Priorities:** A ranking of the most critical environmental issues facing ports today, as identified by the ports themselves. It captures evolving concerns over time, revealing where resources and innovation are being directed.

D. **Services to Shipping:** Evaluates the availability of sustainable services offered by ports to vessels, such as Onshore Power Supply (OPS), LNG bunkering, and fee incentives for green ships. The 2025 report also includes data on the readiness of ports to supply alternative fuels like hydrogen, ammonia and synthetic fuels.

E. **Clean fuels for cars and trucks:** This section, introduced in 2024, continues to monitor the deployment of charging and refuelling infrastructure for road transport, reflecting ports' role in supporting the broader decarbonisation of the logistics chain.

F. **Annex Sample of Ports:** Detailed information about the surveyed ports, including countries, geographic distribution, tonnage and TEN-T status. It also provides the list of ESPO members certified under the PERS standard. It provides the context necessary to interpret the report's findings and track the evolution of the sample over time.

As in previous years, the sample may vary due to the inclusion of new ports or changes in participation. This variability is considered in the interpretation of results. Moreover, the indicators presented here are integrated into PortinSights (www.portinsights.eu), ESPO's digital platform for data collection and analysis, enabling ports to compare, visualise, and benchmark their environmental, operational, and governance data.

This report reaffirms ESPO's commitment to promoting transparency, knowledge exchange, and environmental excellence within the port sector. By presenting lessons learned, best practices, and performance data, it seeks to encourage continuous improvement, stimulate innovation, and support ports in advancing sustainability and climate resilience. At the same time, the outcomes of this report also serve as a valuable input for policy development. Recent initiatives such as the forthcoming EU Ports Strategy , the EU Industrial Maritime Strategy , the implementation of the Port Reception Facilities Directive (2019/883), and the implementation of Alternative Fuels Infrastructure Regulation (2023/1804) are of strategic importance to European ports, and the data provided in this report offers essential evidence to inform and support these policy processes.

## Executive Summary

The ESPO Environmental Report 2025 highlights steady and continued progress in the environmental performance and governance of European ports. Over the past year, many ports have advanced key **environmental management practices**, achieving some of the highest levels of implementation observed to date. The results confirm the sector's growing maturity in integrating environmental sustainability into daily operations, long-term strategies, and stakeholder engagement. The Environmental Management Index (EMI) has reached a new peak value of 8.67 in 2025, continuing the upward trajectory of recent years. This improvement reflects high scores across nearly all environmental management indicators, particularly in policy establishment, objective setting, monitoring, and transparency. The share of ports with a certified Environmental Management System (EMS) now stands at 78%, a 24-point increase since 2013. The existence of an Environmental Policy has risen to 99%, and for the first time, 100% of ports report having defined environmental improvement objectives. Communication of environmental policies has also reached new records. 95% of ports share their policies with stakeholders, and 91% publish them online, underscoring the sector's commitment to transparency and public engagement.

The **monitoring section** tracks how ports assess environmental aspects such as air quality, noise, water quality, and energy use, while also highlighting progress in climate adaptation. In 2025, 95% of ports report conducting environmental monitoring, with the most frequently monitored issues being port waste (87%), energy efficiency (84%), ship waste (84%), and water quality (79%). A growing share of ports now faces operational disruptions due to climate change (69%), with 77% adapting existing infrastructure and 86% integrating adaptation into new developments, demonstrating a strong shift toward climate-resilient planning, an important trend for the forthcoming EU Ports Strategy and the European Oceans Pact .

This year's report introduces a new focus on ports' zero-emission ambitions, in line with Europe's broader climate objectives, including the forthcoming EU Ports Strategy on decarbonisation and energy transition, and the European Green Deal. The results show that 80% of ports have established their own GHG reduction targets where required, while 66% have defined air emissions reduction targets and report compliance with local authority requirements. However, only 37% of ports report the existence of low-emission zones or emission standards at berth. These measures often require coordination with local and national authorities, and their implementation raises concerns about ensuring a level playing field between ports and Member States. The implementation of FuelEU Maritime Regulation will provide an EU-wide framework, requiring certain vessels to connect to Onshore Power Supply (OPS) from 2030-2035, which is expected to address this issue more consistently. Encouragingly, 53% of ports have adopted zero-emission targets for port-related activities, signalling an increasing commitment to contribute to climate neutrality by 2050.

This year's report also provides insights into the **top 10 environmental priorities** identified by ports. Climate change, air quality and energy efficiency are the top three concerns, reflecting the sector's focus on decarbonisation and resilience. Other high-ranking priorities include port development, noise and water quality.

This year's results confirm the continued expansion of **green services to shipping**, such as Onshore Power Supply (OPS), LNG bunkering, and environmentally differentiated port dues. In 2025, 62% of ports offer OPS, 50% of them with high voltage, and 51% provide LNG bunkering, reflecting strong progress in alternative energy infrastructure. For the use of new fuels for shipping, such as hydrogen and biofuels, is starting to gain relevance. Environmentally differentiated dues, used by 61% of ports, reward cleaner shipping and reinforce ports' role in maritime decarbonisation.

The report also tracks developments in **clean fuels for cars and trucks**, reflecting ports' growing role in supporting the decarbonisation of road transport. As of 2025, 95% of ports report having electricity charging stations for cars and trucks, up from 85% the previous year, demonstrating strong momentum in electrification efforts. In contrast, hydrogen fuelling infrastructure remains limited, with only 8% of ports offering this service.

Together, these findings confirm that European ports are making meaningful strides toward improved environmental performance, stronger governance, and climate action. Continued progress in areas such as climate adaptation, clean energy infrastructure, and staff training will be essential to maintain momentum and meet the EU's sustainability goals in the decade ahead.

## About ESPO

The European Sea Ports Organisation (ESPO) serves as the primary intermediary between European seaports and European institutions and policymakers. Established in 1993, ESPO represents the interests of port authorities, port associations, and port administrations from 22 EU Member States and Norway at the EU political level. Additionally, ESPO includes observer members from Albania, Iceland, Israel, Montenegro, Ukraine, and the United Kingdom.

Functioning as the main point of contact for European transport policymakers in Brussels, ESPO is a vital knowledge network that encourages ports to enhance their performance. In terms of environmental management, ESPO plays a crucial role in coordinating the collaborative efforts of the port sector to develop policies focused on monitoring, environmental protection, and sustainability.

### About EcoPorts

EcoPorts is the leading environmental initiative within the European port sector. Launched in 1997 by a group of proactive ports in collaboration with academia, it has been fully integrated into the European Sea Ports Organisation (ESPO) since 2011. The EcoPorts Network enhances environmental awareness through knowledge sharing and collaboration among ports, fostering good practices and the continuous improvement of environmental management across Europe.

As the flagship initiative of the European port sector, EcoPorts was designed by ports for ports, focusing on voluntary self-regulation to demonstrate the sector's capability in managing its environmental responsibilities. The network increases awareness of environmental challenges, aids in regulatory compliance, and upholds high standards of environmental management among its 82 members from 25 countries (as of September 2025).

As noted previously, ports and terminals outside Europe may access the EcoPorts Tool and apply for certification to the international standard EMS (PERS) via www.ecoslc.eu.



## A Environmental management indicators

The Environmental Management Indicators section of the ESPO Environmental Report 2025 provides a detailed assessment of the environmental governance practices implemented by European ports over the past decade. It presents a set of key performance indicators (KPIs) that reflect both the progress achieved and the remaining areas for improvement in how ports manage their environmental responsibilities.

Environmental management refers to the structured and proactive approach that ports take to minimise their environmental footprint. This includes the planning, implementation, monitoring, and continuous improvement of practices aimed at ensuring environmental compliance, reducing negative impacts, and fostering long-term sustainability.

Table 1 presents 10 core environmental management indicators that have been consistently reported across the years. These indicators offer insight into the evolution of environmental management across ports and represent key elements that influence overall environmental performance. The table shows the percentage of positive responses for each indicator, benchmarked against the baseline year of 2013, allowing for the identification of trends and long-term developments.

**TABLE 1**
Percentage of positive responses to the environmental management indicators

| | Indicators | 2013 (%) | 2020 (%) | 2021 (%) | 2022 (%) | 2023 (%) | 2024 (%) | 2025 (%) | % CHANGE 13–25 |
|---|---|---|---|---|---|---|---|---|---|
| A | Existence of a certified Environmental Management System (EMS) – ISO, EMAS or PERS | 54 | 65 | 75 | 75 | 69 | 75 | 78 | +24 |
| B | Existence of an Environmental Policy | 90 | 96 | 93 | 90 | 92 | 98 | 99 | +9 |
| C | Environmental Policy makes reference to international and/or national port environmental policy guidelines | 38 | 43 | 39 | 46 | 53 | 53 | 49 | +11 |
| D | Existence of an inventory of relevant environmental legislation | 90 | 91 | 88 | 90 | 93 | 98 | 97 | +7 |
| E | Existence of an inventory of Significant Environmental Aspects (SEA) | 84 | 92 | 92 | 90 | 92 | 96 | 96 | +12 |
| F | Definition of objectives for environmental improvement | 84 | 88 | 87 | 88 | 90 | 98 | 100 | +16 |
| G | Existence of an environmental training program for port employees | 66 | 55 | 56 | 49 | 49 | 59 | 64 | -2 |
| H | Existence of an environmental monitoring program | 79 | 81 | 86 | 90 | 92 | 95 | 95 | +16 |
| I | Environmental responsibilities of key personnel are documented | 71 | 85 | 82 | 88 | 89 | 93 | 91 | +20 |
| J | Publication of a publicly available environmental report | 62 | 69 | 68 | 74 | 76 | 82 | 83 | +21 |

The ESPO Environmental Report 2025 reveals continued progress and consolidation in the environmental management practices of European ports over the past decade. Analysis of the results from the ten environmental management indicators shows that performance has improved across most parameters compared to 2024, with many indicators reaching or approaching full implementation.

The existence of a certified Environmental Management System (EMS), either ISO, EMAS, or PERS, has risen to 78% in 2025, marking a 24% increase since 2013, and a 3% rise from 2024. This steady growth reflects the sector's ongoing commitment to aligning with internationally recognised standards for environmental performance and compliance.

The existence of an Environmental Policy remains one of the strongest areas, reaching 99% in 2025, up from 98% in 2024 and 90% in 2013. This near-universal presence signals the institutionalisation of environmental governance across European ports.

The definition of objectives for environmental improvement has reached 100%, a perfect score for the first time, confirming that all surveyed ports have now formalised their goals for enhancing environmental performance. This marks a 16-point increase since 2013 and highlights a sector-wide shift towards proactive and strategic environmental planning.

Other indicators also show sustained high performance. The existence of an inventory of relevant environmental legislation stands at 97%, just below last year's peak of 98%, yet still showing a solid 7-point increase over the long term. Likewise, the existence of an inventory of Significant Environmental Aspects (SEA) remains at 96%, maintaining its high level from 2024 and reflecting a consistent ability among ports to identify and prioritise their most impactful environmental interactions.

The environmental monitoring program indicator also stays strong at 95%, consolidating its 16% growth since 2013. This reflects the widespread institutionalisation of regular environmental performance tracking, essential for adaptive management and continuous improvement.

The documentation of environmental responsibilities among key personnel is at 91%, slightly below 2024 but still showing a robust 20% increase over the long term. This high percentage indicates that clear accountability structures are well embedded in port organisations.

The publication of a publicly available environmental report has reached 83%, continuing an upward trajectory and underscoring growing transparency and stakeholder engagement.

The inclusion of references to international or national environmental policy guidelines within port-level environmental policies is slightly down to 49% in 2025, compared to 53% in both 2023 and 2024. Although this still represents a 11-point increase since 2013, the recent decline suggests an area where further alignment with broader frameworks may be encouraged.

Finally, the proportion of ports with an environmental training program for port employees increased to 64% in 2025, up from 59% in 2024 and from a recent low of 49% in 2022. Although this figure remains 2 points below the 2013 baseline, the recent upward trend is promising. It suggests renewed investment in workforce capacity building, possibly reflecting increased awareness among new employees and a broader integration of environmental content in education and vocational programs.

In conclusion, the 2025 data confirm a maturing environmental management culture in European ports. Several indicators have reached very high implementation rates, particularly those linked to policy development, objective-setting, monitoring, and transparency. Continued attention to areas such as employee training and strategic policy alignment will ensure that the sector sustains and deepens its progress in the years to come.

The steady advancement in key environmental management practices has resulted in a further increase in the Environmental Management Index (EMI) for European ports. The EMI serves as an integrated measure that assesses a port's overall



environmental performance (1-10) by combining the results of the ten indicators listed in Table 1. Each indicator contributes differently to the index, based on its relevance to environmental management.

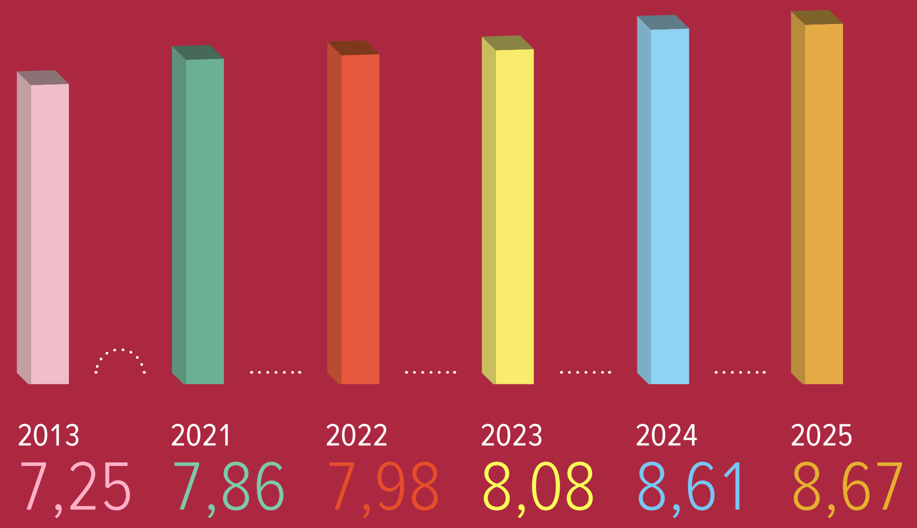
The EMI is determined by applying a specific weight to each indicator and multiplying it by the proportion of positive responses. The formula used to calculate the EMI is:

$$\text{Environmental Management Index} = A \times 1.5 + B \times 1.25 + C \times 0.75 + D \times 1 + E \times 1 + F \times 1 + G \times 0.75 + H \times 1 + I \times 1 + J \times 0.75$$

In this formula, each letter (A to J) represents the percentage of positive responses, expressed as a decimal. For example, for 2025, A corresponds to 0.78.

This index captures a comprehensive picture of environmental management efforts across ports, reflecting both the presence and the weight of specific environmental practices. The progression of the EMI over the years is shown in Figure 1.

**FIGURE 1**
Evolution of the Environmental Management Index over the years

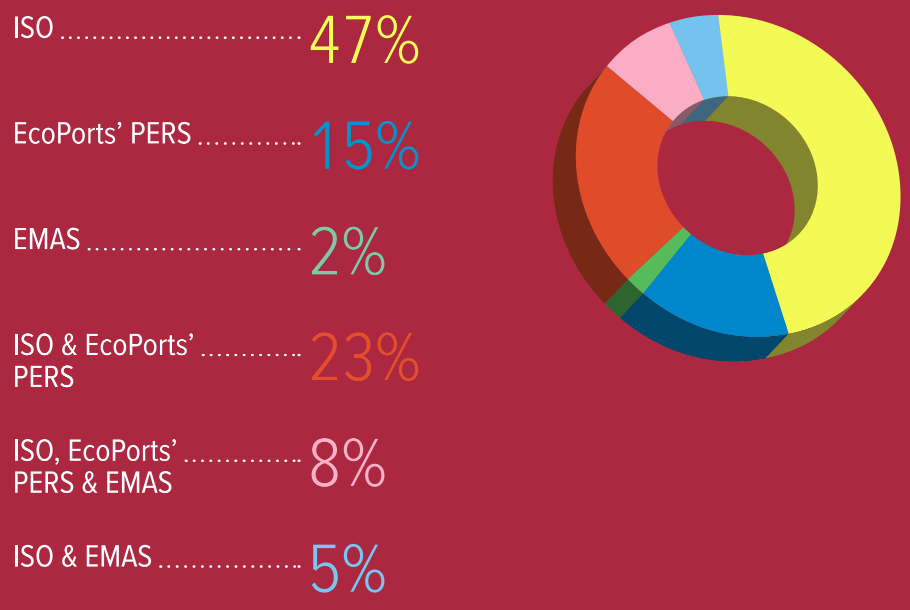



The data clearly shows a consistent upward trend in the EMI over the past decade, culminating in a peak value of 8.67 in 2025. This continued improvement highlights the increasing adoption of effective environmental practices in European ports. The rise from 8.08 in 2023 to 8.61 in 2024, followed by a further increase in 2025, illustrates the positive impact of strengthened environmental governance and growing alignment with sustainability goals.

There are three internationally recognised Environmental Management System (EMS) standards commonly adopted by ports: the EcoPorts' Port Environmental Review System (PERS), ISO 14001, and the Eco-Management and Audit Scheme (EMAS). Figure 2 illustrates the distribution of certifications among ports, including those holding one or multiple EMS certifications.

In 2025, 78% of responding ports reported having a certified EMS. The most widely adopted standard continues to be ISO 14001, with 47% of ports certified. EcoPorts' PERS follows with 15%, while EMAS alone accounts for 2%. A significant share of ports holds multiple certifications: 23% certified under both ISO and PERS, 5% under ISO and EMAS, and 8% under all three standards.

**FIGURE 2**
Breakdown of the EMS certificates (2024)




The PERS standard, developed by EcoPorts, is internationally supported by leading organisations including ESPO, AAPA, IAPH, WPSP, World Bank (European Investment Bank, and European Bank for Reconstruction and Development), the United Nations Environment Programme (UNEP), the African Ports Association, the Arab Sea Ports Federation, the Taiwan Ports International Corporation (TIPC), and the InterAmerican Committee for Ports (Organisation of the American States). PERS is aligned with the ISO 14001 framework. Therefore, PERS will also include any changes that may arise with the expected revision of ISO14001 in 2026, ensuring it remains consistent with international standards.

Certifications such as PERS are increasingly seen as essential tools for demonstrating environmental responsibility and may also serve as a prerequisite for access to project funding. The growing uptake of EMS standards confirms the sector's sustained commitment to environmental practices and supports the long-term sustainability and resilience of port operations.

In addition to the core environmental management indicators, the ESPO Environmental Report 2025 continues to assess how ports communicate their Environmental Policy. Since 2018, two specific indicators have been monitored to track the transparency and accessibility of environmental information:

**FIGURE 3**
Communication of environmental policy to relevant stakeholders

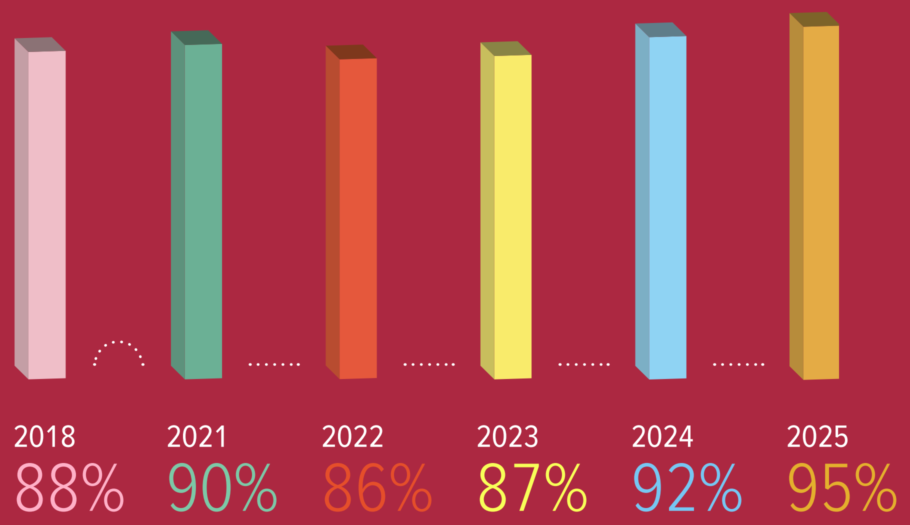





Figure 3 shows a steady increase in stakeholder communication, with 95% of ports in 2025 reporting that they share their Environmental Policy with relevant actors, up from 92% in 2024 and marking the highest level recorded since monitoring began.

**FIGURE 4**
Availability of ports' environmental policy online

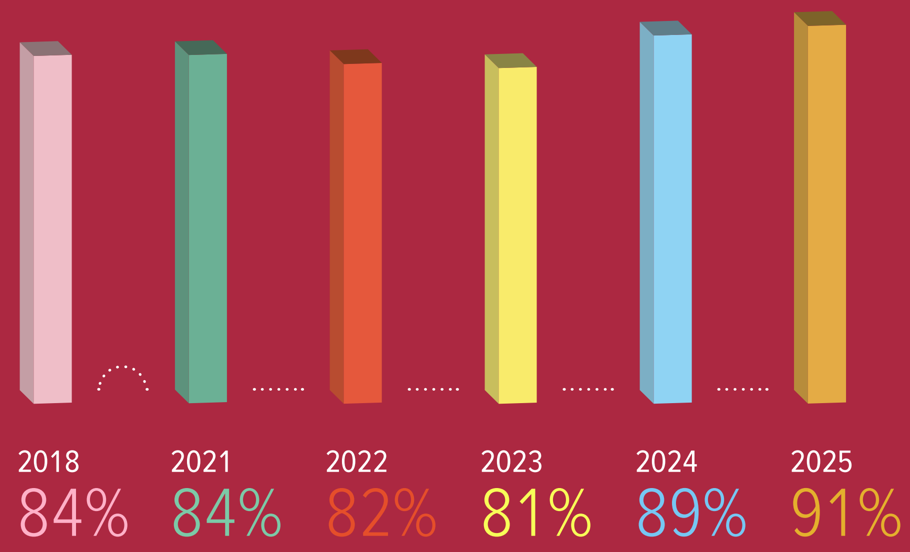



Figure 4 indicates that 91% of ports now make their Environmental Policy publicly available on their website, up from 89% the previous year, continuing the upward trend in digital transparency.

These results demonstrate that European ports are increasingly committed to transparent and proactive engagement with stakeholders such as local communities, regulators, customers, environmental NGOs, and other relevant actors. By openly sharing their Environmental Policy, ports not only align with voluntary best practices developed through EcoPorts but also increasingly respond to regulatory requirements such as the EU's Corporate Sustainability Reporting Directive (CSRD). This dual dynamic helps build trust, invite dialogue, and create opportunities for collaboration in environmental initiatives.

## B Environmental monitoring indicators

The Environmental Monitoring Indicators section of the ESPO Environmental Report 2025 provides insight into the extent to which European ports monitor key environmental parameters. These indicators are essential for understanding how ports measure and manage their environmental performance. Table 2 presents the latest results for 2025, showing the percentage of positive responses for each indicator and tracking progress since the baseline year of 2013.
Monitoring plays a crucial role in enabling ports to evaluate the effectiveness of their environmental strategies, reinforcing the principle that "you can't manage what you don't measure". By collecting and analysing environmental data, ports are better equipped to make informed decisions, demonstrate compliance with regulations, and continuously improve their performance. Regular monitoring supports the design of targeted interventions, helping ports address environmental challenges proactively and efficiently. In addition, monitoring can be seen as a service to port stakeholders, who benefit from greater transparency and the sustainable growth of the port area.

**TABLE 2**
Percentage of positive responses to environmental monitoring indicators

| Indicators | 2013 (%) | 2020 (%) | 2021 (%) | 2022 (%) | 2023 (%) | 2024 (%) | 2025 (%) | % CHANGE 2013–2025 |
|---|---|---|---|---|---|---|---|---|
| Port waste | 67 | 79 | 80 | 79 | 81 | 84 | 87 | +20 |
| Ship waste | - | - | - | - | - | - | 84 | - |
| Energy efficiency | 65 | 75 | 77 | 76 | 76 | 86 | 84 | +19 |
| Water quality | 56 | 67 | 70 | 82 | 82 | 82 | 79 | +23 |
| Carbon Footprint | 48 | 52 | 59 | 63 | 65 | 77 | 78 | +30 |
| Sediment quality | 56 | 59 | 60 | 71 | 73 | 75 | 78 | +22 |
| Waste recycling | - | - | - | - | - | - | 75 | - |
| Water consumption | 58 | 69 | 70 | 72 | 73 | 73 | 74 | +16 |
| Air quality | 52 | 67 | 71 | 66 | 70 | 71 | 69 | +17 |
| Noise | 52 | 54 | 64 | 64 | 64 | 66 | 69 | +17 |
| Marine ecosystems | 35 | 46 | 46 | 52 | 53 | 55 | 56 | +21 |
| Soil quality | 42 | 41 | 40 | 45 | 48 | 55 | 52 | +10 |
| Terrestrial habitats | 38 | 41 | 40 | 45 | 43 | 47 | 47 | +9 |

The 2025 results show positive trends across most indicators, reflecting the growing maturity of environmental management practices in the port sector.

- **Port waste monitoring** has increased from 67% in 2013 to 87% in 2025. This growth reflects the sector's commitment to responsible waste handling and compliance with EU and international regulations. Monitoring waste generation and treatment allows ports to improve recycling rates, reduce environmental risks, and promote circular economy principles.
- **Ship waste monitoring** is reported for the first time in 2025 with a high value of 84%, indicating a strong commitment by ports to control and manage waste generated by vessels. This includes ensuring proper delivery of waste to Port Reception Facilities, minimising illegal discharges at sea, and improving traceability and reporting in line with MARPOL and the Port Reception Facilities Directive.
- **Energy efficiency monitoring** rose from 65% in 2013 to 84% in 2025. This trend highlights the sector's growing efforts to reduce energy consumption, lower operating costs, and cut greenhouse gas emissions. Monitoring enables ports to identify inefficiencies, invest in renewable energy sources (such as solar or wind), and track the impact of energy-saving technologies, aligning with EU energy and climate goals.
- **Water quality monitoring**, although slightly reduced from 82% to 79%, remains at a consistently high level and shows the sector's continued attention to preserving marine and freshwater ecosystems. Ports face significant risks of water contamination from operational runoff, spills, or cargo residues. Monitoring helps ports comply with the EU Water Framework Directive, protect marine biodiversity, and safeguard the health of local ecosystems.
- **Carbon footprint monitoring** has grown from 48% in 2013 to 78% in 2025 (+30%), the most significant increase among all indicators. This sharp rise reflects the increasing priority ports place on climate action. Carbon monitoring enables ports to set decarbonisation targets and track emissions reductions. In 2025, 36% of ports include emissions from stakeholders such as terminals and tenants, and 37% go further by accounting for third-party emissions, including those from ships. While port authorities have only limited direct influence over these wider "scope 3"[1] sources, they increasingly play a facilitative role by providing the infrastructure, incentives, and coordination needed to support their reduction.
- **Sediment quality monitoring** reached 78% in 2025 (+22%). Dredging is essential to port operations but disturbing contaminated sediments can harm aquatic environments. By analysing sediment quality, ports can minimise ecological impacts, comply with environmental regulations, and ensure safe dredging, relocation, or disposal practices.
- **Waste recycling monitoring**, also newly introduced in 2025, reaches 75%, reflecting the growing importance ports place on waste separation and recovery. Recycling supports circular economy objectives and helps reduce landfill use and environmental impacts. High levels of monitoring indicate increasing integration of recycling systems in port waste strategies.
- **Water consumption monitoring** has become increasingly important as ports aim to manage freshwater resources more sustainably. Monitoring helps detect leaks, optimise consumption, and promote water reuse strategies, contributing to the overall reduction of environmental footprints and supporting climate adaptation measures.
- **Air quality and noise monitoring** have both reached 69%, showing steady progress over the last decade (+17% each). These indicators are crucial for addressing the impacts of port operations on workers and nearby communities, ensuring compliance with environmental health standards, and supporting effective mitigation strategies.
- **Marine ecosystem monitoring** reached 56% in 2025, up from 35% in 2013 (+21%). Ports increasingly recognise their responsibility to protect marine biodiversity, particularly in the context of dredging, construction, and land reclamation. Ecosystem monitoring supports compliance with EU environmental policies and enables ports to develop habitat restoration and nature-based solutions. This is also a priority area within broader European initiatives such as the European Oceans Pact, the EU Marine Strategy Framework Directive (2008/56/EC), and climate resilience policies, highlighting the strategic role of ports in safeguarding marine ecosystems.
- **Soil quality monitoring** experienced a small decline from its 2024 high (55%) to 52% in 2025, but still shows a long-term gain of +10%. This reflects a growing awareness of the risks of land contamination, especially in ports with industrial activity or redevelopment projects. Monitoring helps prevent environmental degradation, protect groundwater, and guide land use planning and remediation efforts. Emerging knowledge about newly regulated pollutants, such as PFAS , may have a particularly large impact on ports, as historical contamination can surface during redevelopment, leading to significant remediation costs and influencing future land-use decisions.
- **Terrestrial habitats monitoring** remains stable at 47%. Ports expanding over land must evaluate and mitigate their impact on natural habitats and species. This indicator supports biodiversity protection and aligns with EU objectives under the Biodiversity Strategy and Nature Restoration Law.

Overall, these results show that the importance of environmental monitoring in ports continues to grow, both in scope and in depth. Monitoring now extends to a wider range of indicators, reflecting the sector's expanding responsibilities and increasing attention to emerging environmental challenges. Over the past decade, ports have gained substantial experience in designing and implementing monitoring programmes, which not only support compliance but also provide a solid foundation for long-term sustainability planning, risk mitigation, and alignment with EU environmental goals and climate objectives.

Given the increasing relevance of climate change for the port sector, the ESPO Environmental Report includes a set of indicators to monitor how ports are addressing both climate adaptation and climate mitigation challenges.

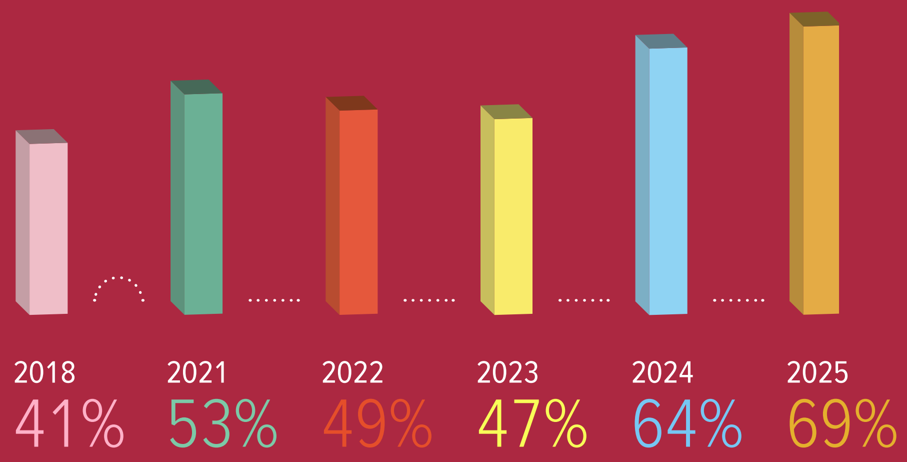
1 Scope 3 emissions: indirect greenhouse gas emissions occurring in the value chain but outside the direct control of the port authority (e.g., ships, tenants, hinterland transport). They often represent the largest share of port-related emissions but are also the most difficult to influence directly.

2 PFAS (per- and polyfluoroalkyl substances) are a large group of synthetic chemicals, often called "forever chemicals" because they persist in the environment.

Since 2018, three key indicators have been used to assess adaptation efforts: i) whether ports face operational challenges due to climate change, ii) whether existing infrastructure is being adapted to improve resilience, and iii) whether climate adaptation is integrated into new infrastructure developments.

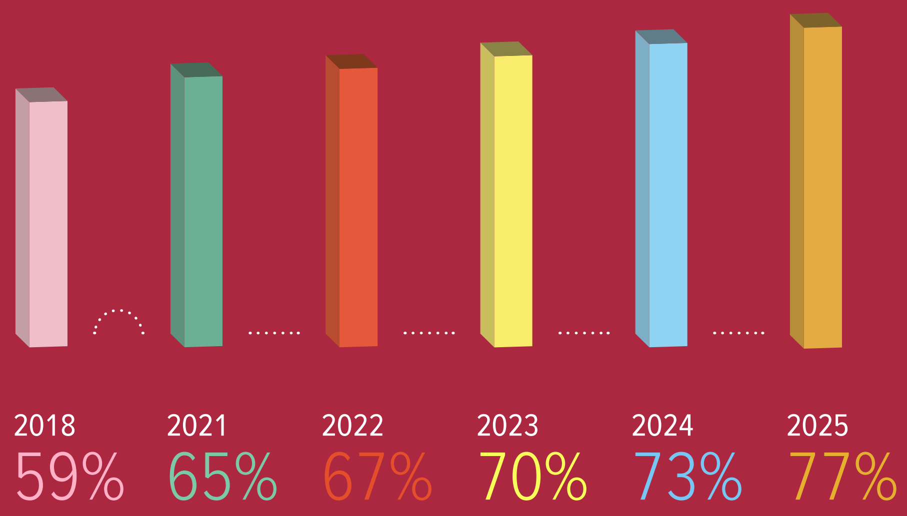
The first indicator assesses whether ports are experiencing operational disruptions linked to climate change, such as extreme weather events, sea-level rise, or changing wind and wave conditions. In 2025, 69% of ports reported facing such challenges, up from 64% in 2024 and 41% in 2018 (Figure 5). This steady increase reflects the growing operational impact of climate-related stressors across the sector and underlines the critical importance of strengthening port resilience as a strategic priority.

**FIGURE 5**
Share of ports experiencing operational challenges related to climate change




The second indicator evaluates actions taken to reinforce existing port infrastructure. In 2025, 77% of ports reported undertaking measures to improve climate resilience, compared to 73% in 2024 and 59% in 2018 (Figure 6). These measures include structural reinforcements, drainage upgrades, and flood protection, demonstrating a strong upward trend in proactive adaptation efforts.

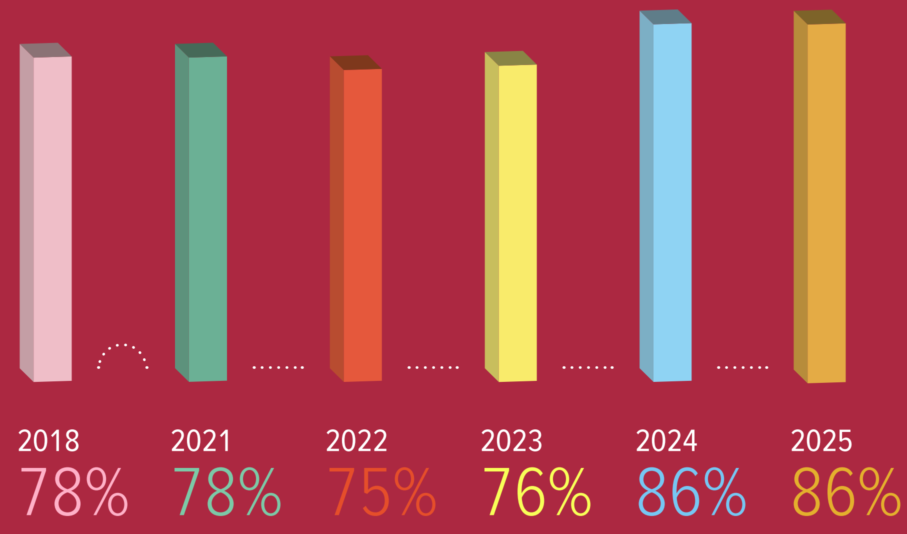
**FIGURE 6**
Share of ports adapting existing infrastructure to increase resilience




The third indicator focuses on whether ports consider climate adaptation when planning new infrastructure. In 2025, this practice was reported by 86% of ports, maintaining the high level reached in 2024 and up from 78% in 2018 (Figure 7). This figure confirms that most ports now incorporate climate resilience into long-term development strategies, ensuring that new investments are robust against future environmental conditions. The consistently high uptake also shows that EcoPorts ports are particularly proactive on this issue, providing strong evidence of the sector's growing resilience.



**FIGURE 7**
Share of ports considering climate adaptation for new infrastructure




In 2025, the ESPO Environmental Report introduces a new set of indicators focused on climate mitigation, reflecting the evolving role of ports under the European Green Deal and the forthcoming EU Ports Strategy. These indicators assess ports' commitments and progress in reducing greenhouse gas (GHG) and air pollutant emissions.

**TABLE 3**
Adoption of emission reduction and zero-emission targets by port authorities.

| | Indicators | 2025 (%) |
|---|---|---|
| A | Has the Port Authority set up its own GHG reduction target? | 80 |
| B | Has the Port Authority set up its own air emissions reduction target? | 66 |
| C | Is the Port Authority aligned with any local authority GHG and air emissions reduction targets? | 66 |
| D | Have low emissions zones and/or emission berth standards been introduced in the port area? | 37 |
| E | Does the Port Authority have a zero-emission target for the emissions related to port activities and operations? | 53 |

The results reveal that 80% of port authorities have established their own GHG reduction targets, demonstrating a strong commitment to climate mitigation and alignment with broader EU climate objectives. Targets for air pollutant emissions are less widespread but still significant, with 66% of ports having set them. The same proportion (66%) report compliance with emission reduction targets established by local authorities, highlighting a general effort to coordinate environmental objectives across governance levels. However, only 37% of ports have introduced low-emission zones or emission standards at berth. Such measures often depend on local or national regulation and raise concerns about maintaining a level playing field between ports. The implementation of EU frameworks (including the Alternative Fuels Infrastructure Regulation (AFIR) and FuelEU Maritime Regulation) will set common requirements for container, passenger, and cruise vessels to use Onshore Power Supply (OPS), providing a more consistent basis for implementation across Europe. Notably, 53% of ports have now adopted a formal zero-emission target for port-related activities and operations, signalling a growing ambition in the sector to fully decarbonise port areas and support the EU's 2050 climate neutrality goals. These findings confirm that while significant progress has been made in target setting, further action is needed to translate ambitions into concrete operational standards and enforcement mechanisms.

**TABLE 4**
Top 10 environmental priorities of the port sector over the years

| | 1996 | 2004 | 2009 | 2013 | 2021 | 2022 | 2023 | 2024 | 2025 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Port development (water-related) | Garbage/ Port waste | Noise | Air quality | Air quality | Climate change | Climate change | Climate change | Climate change |
| 2 | Water quality | Dredging operations | Air quality | Garbage/ Port waste | Climate change | Air quality | Air quality | Energy efficiency | Air quality |
| 3 | Dredging disposal | Dredging disposal | Garbage/ Port waste | Energy consumption | Energy efficiency | Energy efficiency | Energy efficiency | Air quality | Energy efficiency |
| 4 | Dredging operations | Dust | Dredging operations | Noise | Noise | Noise | Noise | Noise | Port development (land-related) |
| 5 | Dust | Noise | Dredging disposal | Ship waste | Relationship with the local community | Water quality | Water quality | Port development (land-related) | Noise |
| 6 | Port development (land-related) | Air quality | Relationship with the local community | Relationship with the local community | Water quality | Relationship with the local community | Ship waste | Ship waste | Water quality |
| 7 | Contaminated land | Hazardous cargo | Energy consumption | Dredging operations | Ship waste | Ship waste | Relationship with the local community | Garbage/ Port waste | Relationship with the local community |
| 8 | Habitat loss/ degradation | Bunkering | Dust | Dust | Dredging operations | Garbage/ Port waste | Port development (land-related) | Water quality | Garbage/ Port waste |
| 9 | Traffic volume | Port development (land-related) | Port development (water-related) | Port development (land-related) | Port development (land-related) | Port development (land-related) | Garbage/ Port waste | Relationship with the local community | Ship waste |
| 10 | Industrial effluent | Ship discharge (bilge) | Port development (land-related) | Water quality | Garbage/ Port waste | Dredging operations | Port development (water-related) | Port development (water-related) | Port development (water-related) |

## C Top 10 Environmental priorities

This section presents the updated Top 10 environmental priorities of European port authorities for 2025, continuing a long-standing series of rankings first established in 1996. These priorities offer key insights into the main environmental concerns as identified by the ports themselves. They also serve as a strategic guide for stakeholders, including policymakers, regulators, and industry partners.

Table 4 provides the full list of the 2025 priorities and compares them with data from previous years. Recurring issues are highlighted using consistent colours, allowing trends to be easily identified over time. This longitudinal perspective helps illustrate how the environmental focus of European ports is evolving in response to regulatory changes, societal expectations, and emerging sustainability challenges.

The 2025 results confirm the ongoing transformation of environmental priorities in line with global challenges and regulatory developments, maintaining the same set of priority issues as in 2024, though with a re-ordered ranking. As shown in Table 4, climate change remains the top priority for the fourth consecutive year, reinforcing the strategic urgency ports place on mitigation and adaptation efforts. The consistent first-place ranking reflects growing climate impacts, new regulatory obligations, and heightened expectations from society regarding decarbonisation and resilience. It also mirrors the strong focus of recent EU regulation and policy initiatives on climate action, which has further elevated this theme across the sector.

**Air quality** is ranked second, maintaining its long-standing position among the top concerns. Since 2009, it has consistently appeared near the top, illustrating ongoing port efforts to reduce emissions from ships, terminal equipment, and transport operations. The priority placed on air quality reflects both regulatory compliance and local community health concerns. Looking ahead, the upcoming revision of the Ambient Air Quality Directive (AAQD) will introduce more stringent standards from 2030 onwards. This poses particular challenges for ports, which are hotspots where logistics, cargo handling, multiple transport modes, and sometimes industry converge. Meeting the tighter limits on NOx and particulate matter (PM) concentrations, as well as nitrogen deposition in protected nature areas, may lead to permitting issues and will require further efforts to ensure compliance.

**Energy efficiency** is ranked third, confirming the sector's strong commitment to reducing energy consumption and improving environmental performance. Ports are advancing energy audits, electrification, and the integration of renewable energy systems in their operations as part of broader sustainability and cost-reduction goals. In addition, some ports are extending these efforts to their wider port community by facilitating energy efficiency initiatives for terminals, tenants, and other stakeholders.

**Port development (land-related)** moves to fourth place, underscoring the importance of balancing expansion with sustainability. As trade volumes grow, ports are increasingly investing in land-use planning and green infrastructure to ensure efficient and environmentally responsible development. At the same time, the energy transition is creating new demands for space, including areas for renewable energy generation, storage, and related industrial activities. The limited availability of land is therefore becoming a critical challenge, particularly as ports take on an expanding role as future energy hubs.

**Noise** remains an important issue, ranking fifth. Ports continue to address this through operational changes, noise barriers, and technological solutions to mitigate the impact of acoustic pollution on neighbouring communities.

**Water quality** ranks sixth in 2025, moving up two positions compared to last year. This reflects ports' ongoing efforts to prevent contamination of marine environments through improved monitoring, spill prevention, and water treatment infrastructure. Looking ahead, the forthcoming revisions of the Water Framework Directive (WFD), including an expanded list of pollutants, will make it increasingly challenging for ports to maintain or reach good water quality. As water is a vital asset for port operations, addressing these new requirements will be critical to ensuring both compliance and sustainable port development.

**Relationship with the local community** ranks seventh in 2025, climbing two positions. This highlights the ongoing importance of social responsibility and community engagement. Ports continue to recognise that maintaining good relations with neighbouring populations is essential for long-term sustainability. Efforts include stakeholder dialogue, transparency, and the implementation of measures to mitigate environmental and social impacts from port activities.

**Garbage and port waste** take eighth place, showing that waste management remains a key operational concern. Ports are increasingly adopting integrated systems to reduce, recycle, and responsibly dispose of waste generated by port users and activities, in line with circular economy principles and environmental regulations.

**Ship waste** ranks ninth, confirming the continuing attention to marine pollution prevention and compliance with international requirements. Investments in waste reception facilities and procedures help ensure that waste from vessels is properly managed, supporting both operational efficiency and environmental protection. The slight decrease in its ranking compared to last year likely reflects progress made in this area, making ship waste management a more established practice, while emerging priorities such as climate adaptation and water quality have gained increased focus.

Finally, **port development (water-related)** closes the Top 10 in 2025. Its reappearance in recent years signals renewed attention to waterfront infrastructure and its role in accommodating larger vessels, improving logistics, and supporting economic growth, while ensuring marine ecosystem protection and reinforcing the blue economy through sustainable shipping, coastal tourism, and the growing development of offshore energy activities such as wind farms.

## D Green services to shipping

Ports play a central role in advancing maritime sustainability by offering green services that reduce emissions and promote cleaner shipping operations. These services are instrumental in helping the sector meet environmental regulations and broader decarbonisation targets. The ESPO Environmental Reports monitor three key green services provided by European ports:

- **Onshore Power Supply (OPS):** OPS enables ships to plug into land-based electricity while at berth, allowing them to switch off their auxiliary engines. This reduces emissions of greenhouse gases, air pollutants (such as $NO_x$ and PM), and noise in port areas. The environmental effectiveness of OPS is maximised when the electricity supplied is generated from renewable sources, particularly solar and wind energy, ensuring truly low-emission operations.
- **LNG Bunkering Facilities:** The provision of Liquefied Natural Gas (LNG) bunkering supports the uptake of alternative marine fuels with a lower emissions profile than conventional heavy fuel oil. While LNG is considered a transitional fuel, its use can significantly reduce sulphur oxides, nitrogen oxides, and particulate matter, contributing to improved air quality and reduced climate impact in the short to medium term.
- **Environmentally Differentiated Port Fees:** These fee structures reward vessels with better environmental performance, such as lower emissions or the use of clean technologies, through financial incentives like reduced port charges. This mechanism encourages ship operators to invest in sustainable practices that exceed compliance requirements.

**Onshore Power Supply (OPS)** offers a key opportunity to reduce the environmental impact of maritime operations. By enabling ships to connect to the electricity grid while at berth, OPS allows them to switch off auxiliary engines, significantly lowering emissions of air pollutants, greenhouse gases and noise in port areas.

**FIGURE 8**
Positive responses to Onshore Power Supply (OPS) indicators

* The percentages of these indicators are calculated on the basis of the 48 ports offering OPS (62% of ports), not out of the total of participating ports.

The latest data indicates that the adoption of Onshore Power Supply (OPS) in ports continues to grow (Figure 8). In 2025, 62% of surveyed ports reported providing OPS at one or more berths, an increase from 58% in 2024. This growth reflects the steady integration of green technologies into port operations.

Among the ports offering OPS, 83% provide low voltage OPS, typically used by inland, domestic, and auxiliary vessels. These projects are complex, requiring smaller investments and involving fewer stakeholders, and can therefore be implemented directly by port authorities. The widespread deployment of low-voltage OPS demonstrates ports' awareness of its benefits. By contrast, high-voltage OPS, designed for container, passenger and cruise vessels, is only gradually being introduced. Implementation remains limited, due to the complexity, cost and infrastructure requirements involved. Deploying high-voltage OPS involves complex coordination among multiple stakeholders, lengthy upgrades to energy infrastructure, high financial risks, regulatory uncertainty, and the absence of mandatory commitments from the shipping sector to make use of the infrastructure before 2030. While the current statistics allow to monitor the overall progress in installing OPS, a more detailed survey would be needed to measure the exact progress towards meeting the requirements of AFIR.

Finally, regarding the delivery of OPS, most systems are fixed installations (96%), while 19% of ports also provide mobile OPS units. Mobile solutions remain niche products, but they reflect ongoing innovation and offer added flexibility for different berth configurations and vessel types.

Looking ahead, the pace of planned OPS expansion has slightly decreased but remains strong: 52% of ports plan to install OPS within the next two years, compared to 59% in 2024. This indicates that the majority of ports are either already offering OPS or intend to do so shortly, reflecting a sustained commitment to improving environmental performance.

Despite this progress, ports continue to face several challenges in expanding OPS infrastructure. In line with the Alternative Fuels Infrastructure Regulation (AFIR), OPS must be available by 2030 for container, cruise, and passenger vessels over 5,000 GT at TEN-T maritime ports. However, many ports report difficulties related to the availability of grid infrastructure (such as the lack of physical connections, substations, or the need for costly frequency conversion) as well as limited grid capacity, meaning that even where infrastructure exists, the power supply is not sufficient to meet OPS demand. The scale of these obstacles varies depending on each port's development plans, ship type and operational patterns, but together they highlight the need for coordinated investment and support to overcome technical constraints and ensure effective deployment.

In summary, while the OPS landscape shows positive trends in implementation and planning, addressing infrastructure limitations will be essential to unlock the full environmental benefits of this critical green service. Importantly, the availability of installations alone does not guarantee emissions reductions, these depend on commitments to use OPS, either through regulation or bilateral agreements with shipping lines.

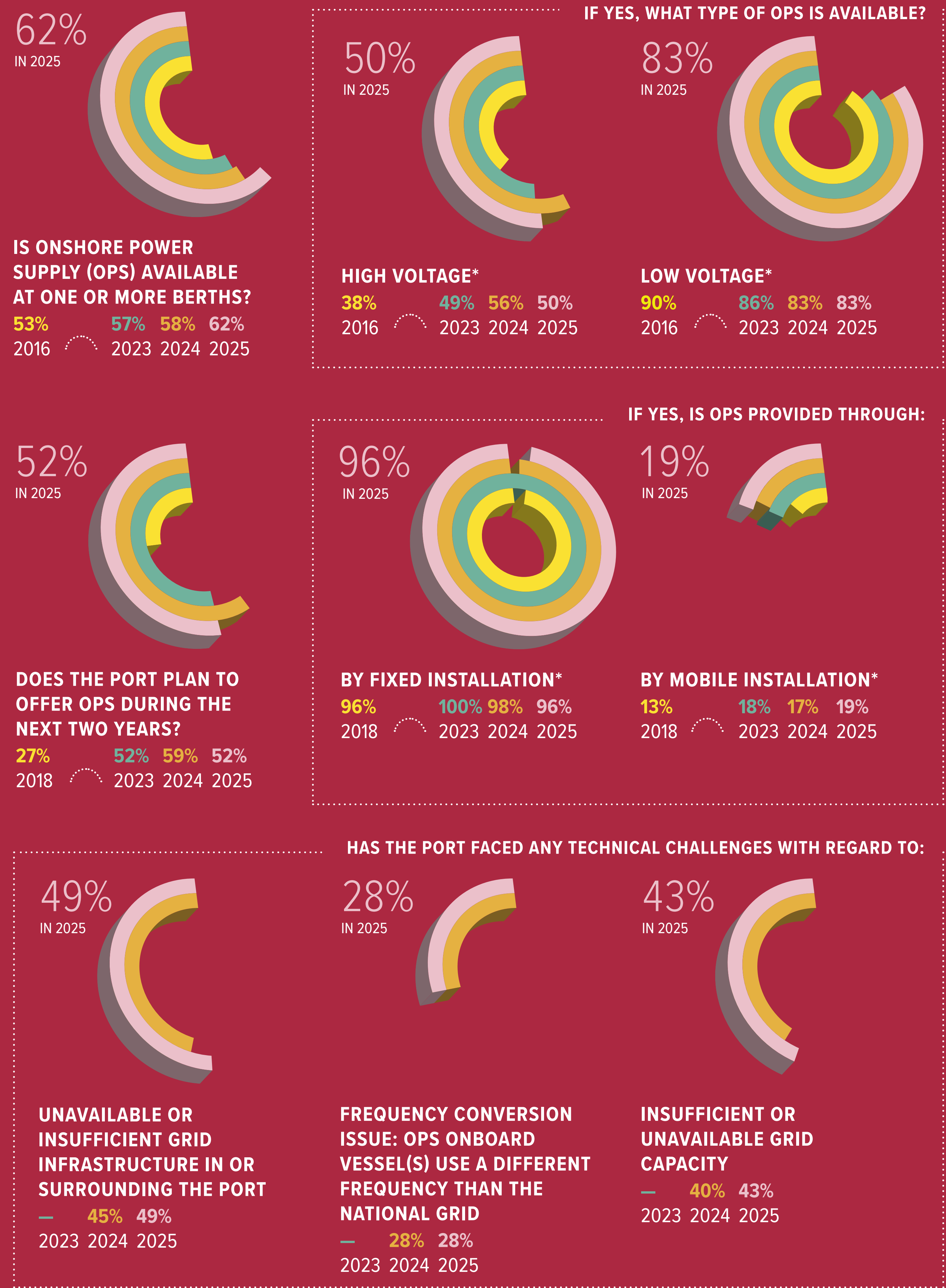


**FIGURE 9**
Positive responses to Liquefied Natural Gas (LNG) indicators

*The percentages of these indicators are calculated on the basis of the 39 ports offering LNG bunkering (51% of ports), not out of the total of participating ports.

The provision of Liquefied Natural Gas (LNG) bunkering in ports continues to play a pivotal role in the decarbonisation of the shipping industry. The ESPO Environmental Report 2025 shows steady progress in this area, aligned with the maritime sector's broader shift towards sustainable fuels (Figure 9). As of 2025, 51% of surveyed ports offer LNG bunkering, a significant increase from 22% in 2016. While this growth is in line with the requirements of the Alternative Fuels Infrastructure Regulation (AFIR), it is important to note that AFIR only requires LNG infrastructure where there is market demand. The pace of uptake therefore depends on shipping companies' fuel choices and the role of LNG as a transitional fuel. Port managing bodies cannot drive this demand directly, but they play a crucial role in preparing the ground: defining the conditions and environment for safe and efficient bunkering, establishing clear rules and protocols for suppliers and vessels, and clarifying where specific fuels (e.g. ammonia) may not be permitted for safety reasons. In doing so, ports create the framework to facilitate uptake and attract the necessary investment for future alternative fuels infrastructure.

LNG continues to be used as an alternative to conventional marine fuels, offering lower greenhouse gas (GHG) emissions and reduced air pollutants compared to heavy fuel oil. The ESPO Environmental Report 2025 shows that 51% of surveyed ports provide LNG bunkering, up from 22% in 2016, with truck-based delivery still the most common method. Barge bunkering and non-mobile installations are also gradually expanding, reflecting ports' efforts to diversify supply options.

In fact, the 2025 report highlights a growing amount of investment in next-generation clean fuels infrastructure in ports. Today, 43% are working on hydrogen projects, 28% on biofuels, 16% on ammonia, 14% on methanol/methane and 13% on synthetic fuels. These developments underscore a more forward-looking commitment to enabling the fuels and technologies that will drive the sector's long-term transition to climate neutrality.

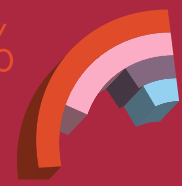
51%
IN 2025

**IS LIQUEFIED NATURAL GAS (LNG) BUNKERING AVAILABLE IN THE PORT TODAY?**

22% 42% 48% 51%
2016 2023 2024 2025

**IF YES, HOW IS LNG BUNKERED IN THE PORT?**

26%
IN 2025



**THROUGH A NON-MOBILE INSTALLATION***

7% 8% 18% 26%
2018 2023 2024 2025

82%
IN 2025

**BY TRUCK***

85% 86% 88% 82%
2018 2023 2024 2025

54%
IN 2025

**BY BARGE***

19% 51% 50% 54%
2018 2023 2024 2025

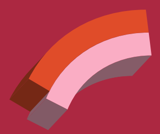
**ARE THERE ANY PROJECTS UNDER DEVELOPMENT FOR INFRASTRUCTURE FOR OTHER CLEAN FUELS?**

43%
IN 2025

**HYDROGEN**

— 44% 43%
2023 2024 2025

16%
IN 2025



**AMMONIA**

— 17% 16%
2023 2024 2025

28%
IN 2025

**BIOFUELS**

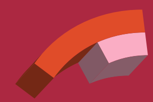
— 26% 28%
2023 2024 2025

13%
IN 2025

**SYNTHETIC FUELS**

— 18% 13%
2023 2024 2025

14%
IN 2025



**METHANOL OR METHANE**

— 6% 14%
2023 2024 2025

**FIGURE 10**

Share of ports providing differentiated dues to “Greener vessels”

*The percentage of the different initiatives are calculated on the basis of the 51 ports offering differentiated dues for “Greener Vessels” (61% of surveyed ports), not out of the total number of participating ports.

The 2025 ESPO report reaffirms the continued efforts of European ports to foster sustainability by offering environmentally differentiated port dues for vessels that exceed regulatory environmental standards. These schemes incentivise shipping companies to adopt cleaner fuels, reduce emissions, implement energy-efficient technologies, and improve waste management practices by providing reductions in port infrastructure charges. While the financial impact of these incentives on the ship costs is relatively small at the level of a single port call, widespread implementation across many ports and repeated calls can send a strong signal to vessel operators that ports are actively supporting the shipping sector's sustainability transition.

According to the latest data (Figure 10), 61% of surveyed ports offer environmentally differentiated dues, consistent with 2024 figures. Among these ports, the most common incentives are for the reduction of air emissions such as $NO_x$, $SO_x$, and particulate matter (70%), greenhouse gas (GHG) reductions (66%), and vessels with environmental certification (57%). Additionally, 57% of ports offer incentives for waste management and segregation, while 32% reward ships for noise reduction. All these initiatives show improved uptake compared to previous years, reflecting a steady commitment to green shipping. For the first time, the 2025 report includes a new indicator: 15% of ports now offer incentives for vessels equipped with wind-assisted propulsion technologies.

Looking ahead, 32% of ports plan to introduce environmentally differentiated dues within the next two years. Although this is slightly lower than in 2024, it still indicates a solid commitment to environmental performance and innovation. These incentive schemes are increasingly seen as strategic tools to drive sustainable behaviours in shipping, contributing to emissions reductions, improved environmental quality, and progress toward the maritime sector's decarbonisation goals.

# E Clean fuels for cars and trucks

The 2025 ESPO Environmental Report continues to highlight the growing role of European ports in supporting clean mobility for land-based transport. This section focuses on the availability of electricity charging stations and hydrogen fuelling infrastructure for cars and trucks within port areas, reinforcing the broader sustainability agenda of the sector (Figure 11).

As of 2025, 95% of surveyed ports report having electricity charging stations for cars and/or trucks. This marks a significant increase from 85% in 2024 and demonstrates the firm commitment of European ports to facilitate the electrification of road transport. These facilities serve not only port staff and visitors but also support cleaner logistics operations, contributing to the reduction of urban air pollution and greenhouse gas emissions.

In contrast, hydrogen fuelling stations for trucks are still rare, with only 8% of ports offering this infrastructure, up slightly from 6% the previous year. While hydrogen holds potential as a low-emission fuel for heavy-duty transport, its deployment remains limited due to high infrastructure costs, technical barriers and safety concerns related to storage and handling. The modest increase reflects a slow but ongoing interest in diversifying clean fuel options at ports.

By expanding support for both electric and hydrogen-powered vehicles, ports are reinforcing their strategic role in multimodal decarbonisation and aligning with EU climate and transport objectives.



### Conclusions

The 2025 ESPO Environmental Report confirms that European ports continue to strengthen their environmental governance and performance. Key indicators such as certified Environmental Management Systems, environmental objectives, and environmental policy communication have reached record levels, reflecting a maturing culture of transparency and continuous improvement. Monitoring practices have expanded further, particularly on carbon footprint and sediment quality, while climate adaptation is now firmly integrated into both existing and new infrastructure planning.

This year also marked the introduction of new indicators on ports' zero-emission ambitions. A growing majority of ports now set greenhouse gas and air pollutant reduction targets, and more than half have adopted formal zero-emission goals for their own activities. These results demonstrate increasing alignment with EU climate objectives and underline the sector's proactive role in enabling decarbonisation.

The 2025 results also confirm the sector's focus on the most pressing environmental priorities. Climate change remains the top concern for the fourth consecutive year, followed by air quality and energy efficiency. Other issues high on the agenda include sustainable port development (both land- and water-related), noise and water quality.

Ports are also consolidating their role as enablers of the energy transition. Significant progress has been made in expanding green services to shipping, with broader deployment of Onshore Power Supply, LNG bunkering, and incentive schemes for cleaner vessels. Similarly, nearly all ports now provide charging infrastructure for cars and trucks, underlining their contribution to multimodal decarbonisation.

Looking ahead, European ports face growing challenges in balancing development with sustainability. Limited space, stricter environmental requirements (e.g. under the revised Ambient Air Quality Directive and Water Framework Directive), and increasing demands linked to the energy transition will require innovative solutions. As ports evolve into energy hubs and drivers of the blue economy, ensuring sufficient capacity for renewable energy generation, storage, and offshore activities will be critical.

Regulations such as the Alternative Fuels Infrastructure Regulation (AFIR) and the FuelEU Maritime will play a central role in shaping port operations. To meet these new requirements, ports will need continued investment, stronger coordination with stakeholders, and supportive regulatory frameworks that ensure a level playing field across Europe, enabling elements that will hopefully be provided for in the forthcoming EU Ports Strategy.

# F Annex: Sample of ports

The 2025 sample comprises 77 European ports from 18 countries, all of which are members or observers of the European Sea Ports Organisation (ESPO). It includes ports from EU Member States and neighbouring countries that apply EU environmental legislation, such as Norway (through the European Economic Area) and the United Kingdom (a former EU Member State with a similar regulatory framework).

Spain represents the largest share of the sample, accounting for 20.8% with 16 ports, followed by both the United Kingdom and Germany, with 13% each (10 ports per country). The Netherlands contributes 10.4% with 8 ports, while Greece accounts for 6.5% (5 ports). Denmark, Finland, and Ireland each contribute 5.2% (4 ports per country). Several other countries, including Norway, Sweden, Portugal, Bulgaria, and France, contribute 2 to 3 ports each, making up between 2.6% and 3.9% of the sample. The remaining countries (Italy, Lithuania, Latvia, Romania, and Estonia) each have a single participating port (1.3%).

This diverse geographic distribution supports a broad and balanced understanding of environmental practices and priorities across Europe's port sector, encompassing a range of regional, operational, and regulatory contexts.

**TABLE 5**
List of countries represented in the sample and number of participating ports

| Country | Number of ports | Percentage (%) |
|---|---|---|
| Spain | 16 | 20,8 |
| United Kingdom | 10 | 13,0 |
| Germany | 10 | 13,0 |
| Netherlands[6] | 8 | 10,4 |
| Greece | 5 | 6,5 |
| Denmark | 4 | 5,2 |
| Finland | 4 | 5,2 |
| Ireland | 4 | 5,2 |
| Norway | 3 | 3,9 |
| Sweden | 2 | 2,6 |
| Portugal | 2 | 2,6 |
| Bulgaria | 2 | 2,6 |
| France | 2 | 2,6 |
| Italy | 1 | 1,3 |
| Lithuania | 1 | 1,3 |
| Latvia | 1 | 1,3 |
| Romania | 1 | 1,3 |
| Estonia | 1 | 1,3 |

6 Ports in the Netherlands include North Sea Port, a cross-border port authority covering a 60-kilometer area in the Netherlands and Belgium.

As illustrated in Figure 12, the geographical distribution of the participating ports reflects a wide range of coastal and inland settings, ensuring robust environmental representativeness. The most common geographic settings among the ports in the 2025 sample are embayment, protected coast, and marine inlet, which together account for 34.3% of the sample. These are followed by ports located in estuaries (26.3%) and along engineered coastlines (25.3%). River ports make up 14.1% of the total sample. This diversity in geographic characteristics reinforces the balanced composition of the EcoPorts database, providing insights that span across varied environmental contexts and port operational realities.



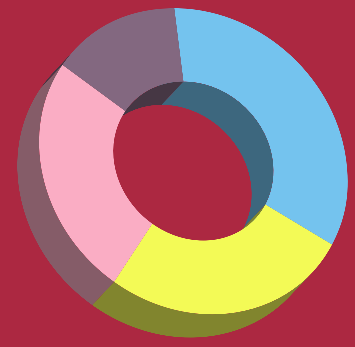
**FIGURE 12**
Geographical characteristics of the sample

Embayment, Protected Coast, Marine Inlet .......... 34,3%

Estuary .......... 26,3%

Engineered Coastline .......... 25,3%

River .......... 14,1%



Regarding the size of the participating ports, small ports handling less than 5 million tonnes per year constitute 42% of the overall sample. They are followed by medium-sized ports (5 to 15 million tonnes/year) at 26.1%, and large ports (15 to 50 million tonnes/year) with a share of 20.3%. Ports managing more than 50 million tonnes annually represent 11.6% of the sample. The strong participation of small ports is particularly noteworthy, as it highlights their active engagement in environmental management and their implementation of innovative sustainability initiatives, often through cooperation and shared learning. While larger ports often receive greater public visibility, the contributions of smaller ports remain essential in driving environmental progress across the sector.

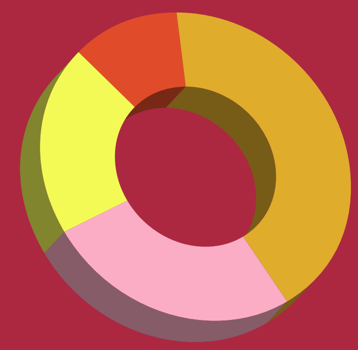
**FIGURE 13**
Tonnage characteristics of the sample (million tonnes/year)

<5 .......... 42%

5<15 .......... 26,1%

15<50 .......... 20,3%

>50 .......... 11,6%



The TEN-T status of a port (Core, Comprehensive or non-TEN-T) often defines the scope of EU legislation that applies, making it relevant to assess the sample in that respect as well. As can be seen in Figure 14, the sample shows that 50.6% of the participating ports are part of the Core Network, and 29.9% of them are part of the Comprehensive Network.

**FIGURE 14**
Percentage of ports in TEN-T Network out of the sample

TEN-T Network .......... 80,5%

Share of TEN-T core ports out of all ports .......... 50,6%

Share of TEN-T comprehensive ports out of all ports .......... 29,9%

**TABLE 5**
List of ESPO-member ports certified with EcoPorts PERS at the date of publication

| Port | Country |
|---|---|
| Port of Algeciras | Spain |
| Port of Barcelona | Spain |
| Ports of Bremen/Bremerhaven | Germany |
| Port of Castellón | Spain |
| Port of Ceuta | Spain |
| Port of Cork | Ireland |
| Port of Dover Harbour Borad | United Kingdom |
| Port of Dublin Port Company | Ireland |
| Port of Exploitatiemaatschappij Havencomplex Lauwersoog BV. (EHL) | The Netherlands |
| Port of Groningen Seaports | The Netherlands |
| Port of Harlingen | The Netherlands |
| Port of Heraklion Port Authority | Greece |
| Port of Igoumenitsa port Authority | Greece |
| Port of JadeWeser Port | United Kingdom |
| Port of Jersey | United Kingdom |
| Port of Klaipėda | Lithuania |
| Port of Melilla | Spain |
| Port of Niedersachsen Ports GmbH & Co. KG | Germany |
| North Sea Port | The Netherlands |
| Port of Oslo | Norway |
| Port of Pori | Finland |
| Port of Rotterdam Authority | The Netherlands |
| Port of Santander | Spain |
| Port of Seville | Spain |
| Port of Shoreham | United Kingdom |
| Ports of Stockholm | Sweden |
| Port of Tenerife | Spain |
| Port of Valencia | Spain |
| Port of Vigo | Spain |
| Port of Volos | Greece |
| Port of Waterford | United Kingdom |

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ESPO

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