ECO SLC Sustainability Report 2025

Ports and terminals moving towards sustainability

ECO SLC
Sustainable Logistics Chain

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Content

Executive summary

This report presents the environmental performance of 43 ports from 19 non-European countries that are members of the Eco Ports. The results have been gathered through the Self Diagnosis Method (SDM), a checklist on environmental aspects developed by EcoPorts project.
Key findings

- Ports, terminals and logistics operators continue their transition towards sustainable, resilient business models.
- Ports face new risks, particularly from climate change, but also new opportunities that are transforming strategies for long-term resilience and continuity.
- EcoPorts remains as one of the leading global network and reference frameworks for environmental management in ports and terminals, supporting the integration of environment, sustainability, and business performance
- EcoPorts certification requires ports to continuously adapt to new laws, regulations, and international climate agreements, while demonstrating practical improvements at each re-certification cycle.
- 100% of ports report having a certified Environmental Management System (EMS), confirming the consolidation of robust and verifiable environmental practices across the network.
- Air quality remains as the top environmental priority, while climate change has reached third position, confirming its growing importance.
- Monitoring of carbon footprint has risen significantly (80%), while ecosystem-related indicators can be areas for future improvement.
- Ports are strengthening adaptation: 71% report adapting existing infrastructure to enhance climate resilience, and 78% consider climate adaptation in new infrastructure projects.
- The 2025 survey shows that nearly three-quarters of ports have now set their own GHG reduction targets, and half of them report having adopted a zero-emission goal, reflecting the integration of climate mitigation into business strategies.
- The provision of differentiated port dues for greener vessels is growing (22%), although most schemes remain limited in scope.
- Clean fuels for land transport are progressing, with 37% of ports now providing charging stations for cars and trucks.
- In 2025, 81% of ports report integrating sustainability issues into their Environmental Policy, and the same share have undertaken a materiality assessment to identify their most relevant environmental issues.

Overall, the 2025 results show that ports are strengthening their environmental management practices and are taking steps towards reducing climate impacts, improving resilience, and supporting sustainability goals. The EcoPorts network, through SDM and PERS, continues to offer a strong framework that helps ports worldwide to show responsibility, meet regulations, and take leadership in the move towards more sustainable logistics chains.

Foreword

More than 25 years ago, I was involved in the first development of the EcoPorts tools for the environmental management in seaports. It's great to see that these tools haven't lost any of their relevance. And it is interesting to see how the prioritization of environmental issues has developed over this past 25 years. Some issues are given less priority now than 25 years ago, not because they are no longer important, but because they are now under control. Other issues are now given more priority for various reasons. Energy management is clearly a rising priority for seaports. This has to do with the objectives of becoming climate neutral, but of course also has an economic background: electricity is expensive and scarce. The major investments that are needed for the energy transition also make it necessary to take a good look at the business case.

Now, more than 25 years ago, sustainability has become a major strategic challenge. External factors like environmental regulation, energy policy and new technologies, are already creating a new playing field for ports. Climate change and energy transition require a new positioning of ports, partly with optimized processes, partly also with completely new roles, new processes and new business partners, such as in wind energy, circular business or the recycling of CO_2. What will be the environmental priorities in the next 25 years? Of course we can’t just easily include these future challenges in a tool like an SDM and report on the future in this report. But having the house in order, being aware of who the stakeholders are, and being in control, will no doubt help in facing also these future challenges.

Dr. Mark van der Veen

Director of Graduate School of Business

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1. Introduction

Since 2010, the ECOSLC Foundation has been introducing the EcoPorts environmental management system in ports and terminals in countries outside Europe. This is based on international management standards and has been adapted to the specific tasks and responsibilities of ports. Ports receive the EcoPorts PERS certificate if the audits carried out by LRQA Netherlands are positive. This certificate is valid for two years. Port authorities, port operators (hereinafter collectively referred to as “ports”) and terminals that implement EcoPorts become members of the global network of EcoPorts ports. This offers the opportunity to share practical experiences with improving business, sustainability and environmental impact.

1.1 Some current trends in the port sector

Ports and terminals are currently undergoing a period of major global changes in the overall process of port, industry, transport and logistics. Many ports have been forced to radically adjust their strategy.

Recent strategies adopt a process-oriented approach to achieving sustainability, while simultaneously maintaining profitability as a central requirement.

For some time now, air quality has been monitored in various ports in order to assess the results of policies aimed at reducing CO_2 emissions from port activities. Emissions in transport chains that pass through the port are increasingly included in this. This process-approach can lead to innovations that reduce both environmental impact and operational costs and substantially improve efficiency.

The energy transition places high demands on ports and terminals. Their basic income from transshipment and processing of large fossil goods flows is therefore gradually declining. Income from replacement activities is necessary for the continuity of the port. Ports and terminals are actively investing in the generation of new forms of energy production, transformation and storage, and in the necessary infrastructure and transport.

Fully zero-emission terminals are now examples of investments that reduce environmental impact to zero. At the same time, the required operating return for the continuity of the business is now coming into view.

This requires new knowledge, new financing methods and scale. The investments required for this sometimes exceed the financial capacity of individual ports and terminals, as well as their personnel capacity. To this end, new forms of co-investment and co-financing and the organisation of partnerships and management between affiliated companies have been developed. Stakeholder engagement is therefore becoming increasingly important.

Some examples are: Onshore power supply, Electrification of transport and terminal equipment, Production, sale, storage and distribution of renewables, Management of logistics chains, IT support and control of the port, transport and logistics process, Introduction of equal management standards by the collaborating parties.

1.2 EcoPorts trends from SDM data

The EcoPorts PERS certification process starts with the EcoPorts Environmental Self Diagnosis Methodology (SDM). Ports and terminals use this to check the various actions they want to take to continuously improve their "Environmental Profile". ECOSLC provides an SDM Review of the results. This compares the port's results with current trends in policy and implementation in the port sector and with the requirements for EcoPorts PERS certification.

Indications of current trends in port investments in improvements emerge in various parts of the SDMs. For example, in: Green Services to shipping, OPS, LNG, Clean Fuels for cars and trucks, Electric cars and equipment, Electricity charging systems, Continuous improvement, Membership of the EcoPorts Network and Ongoing Challenges and opportunities.

Herman Journée

Chairman ECOSLC Foundation

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2. EcoPorts network

Launched in 1997 by a group of environmentally proactive ports in collaboration with academia, the EcoPorts Network continues to enhance environmental awareness and the implementation of good practices through knowledge sharing, peer-to-peer exchange, and active collaboration among ports. Its central aim remains the continuous improvement of environmental management across the sector.

The EcoPorts Network is administered through two organisations, ESPO and ECOSLC, working within a joint framework of tools and methodologies,

EcoPorts is the leading environmental initiative within the European port sector. Designed by ports, for ports, it was fully integrated into the European Sea Ports Organisation (ESPO) in 2011. As the flagship initiative of the European port sector, EcoPorts is based on voluntary self-regulation and demonstrates the capability of ports and terminals to effectively manage their environmental responsibilities. The network raises awareness of environmental challenges, supports regulatory compliance, and upholds high standards of environmental management. As of August 2025, EcoPorts has 92 members from 26 countries, showing continued growth and strong commitment across Europe.

ECO Sustainable Logistics Chain (ECOSLC) Foundation was established in The Netherlands with the support of this group of ports and ESPO, in order to expand the EcoPorts concept to countries outside Europe.

Since its establishment in 2010, the ECOSLC Foundation has introduced the EcoPorts environmental and sustainable management system to ports and terminals worldwide. Its website (www.ECOSLC.eu) serves as the entry point for non-European ports to begin implementing the EcoPorts SDM, EcoPorts PERS, and certification processes. Administration, review and audit procedures, as well as training opportunities, are arranged and provided by ECOSLC. The continued uptake of SDM and PERS outside Europe demonstrates the global relevance of the EcoPorts methodology in supporting ports to strengthen environmental management and sustainability practices.


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Administración del Sistema Portuario Nacional Ensenada, S.A. de C.V. Mexico

3. The EcoPorts Environmental Management System for ports and terminals

As a result of successful collaboration between ports and academia through various European projects, several tools were developed. Among these, the most widely used and actively applied are the SDM and PERS, which are described in the following sections.

3.1 SDM

The SDM (Self Diagnosis Method) was originally developed more than twenty years ago as part of a European Commission project by port professionals in collaboration with academics and industry specialists (EcoPorts). It was designed as a practical checklist of components that may reasonably be expected in a good practice example of an effective Environmental Management System (EMS). Its approach incorporates the *Precautionary Principle* and assists Port Authorities, Corporations or Terminal Operators in demonstrating that they have taken "all reasonable steps" to comply with their environmental liabilities and responsibilities, while contributing to risk prevention policy.

Over time, the SDM has been periodically updated to reflect changes in legislation, evolving environmental priorities, and the expectations of an increasingly wide group of stakeholders. In recent years, the tool has also incorporated sustainability dimensions, reflecting the stronger integration of climate change, continuous improvement, and materiality assessments into port management practice. The latest survey results (see Table 18) confirm this trend: 81% of ports now include sustainability in their environmental policy and have undertaken a materiality assessment**,** showing that the SDM has successfully incorporated new sustainability dimensions now widely adopted by ports.

Jordan Industrial Ports Company

3.2 PERS

The SDM was also designed to guide ports step-by-step towards the International Standard for the certification of an Environmental Management System (EMS), the EcoPorts Port Environmental Review System (PERS), which remains the only EMS standard tailored specifically to the port sector. PERS is widely recognized not only as a benchmark for responsible port management but also as a reference by international organizations, development banks, and port associations, such as:

- American Association of Port Authorities (AAPA)
- African Ports Association Arab Sea Ports Federation
- European Sea Ports Organization (ESPO)
- InterAmerican Committee for Ports (Organization of the American States)
- International Association of Ports and Harbours (IAPH)
- Taiwan Ports International Corporation (TIPC)
- United Nations Environment Programme (UNEP)
- World Bank (European Investment Bank, and European Bank for Reconstruction & Development)
- World Ports Sustainability Program (WPSP)

As part of the process, ports applying for initial certification or periodic re-certification receive a comprehensive review of the status of their EMS, based on their responses to the SDM questionnaire. This includes a SWOT analysis (Strengths, Weaknesses, Opportunities and Threats) to provide practical guidance, and a GAP analysis comparing their performance against PERS, ISO 14001 (2015), and the EU Eco-Management and Audit Scheme (EMAS).

In 2025, the relevance of PERS is reinforced by the fact that ports are increasingly setting GHG and air emissions reduction targets and even adopting zero-emission goals (see Table 12). Integrating such objectives into certified EMS frameworks, like PERS, ensures credibility, transparency, and accountability.

Terminal Andipuerto - Andipuerto Guayaquil S.A, Ecuador

4. Results of the analysis

As previously mentioned, this year's assessment of environmental management performance is based on information provided by 42 ports located in 19 non-European countries within the ECOSLC Network, through their completion of the EcoPorts Self Diagnosis Method (SDM). As in previous years, the analysis has been undertaken in strict confidence and provides both a baseline of current practice and a benchmark for progress, highlighting trends that are relevant to the ongoing improvement of port environmental management.

The following sections present a series of tables covering results from different years of evaluation. Most figures represent the percentage of positive responses to each question or topic in the SDM. These percentages are calculated as the proportion of affirmative replies relative to the total number of ports responding.

4.1 Environmental Management Indicators

The adoption of a structured Environmental Management System (EMS) is recognised as a pillar of effective environmental protection and sustainable port operations. An EMS typically integrates the procedures and processes that enable ports to comply with legal requirements, manage environmental impacts, and pursue continuous improvement. Together, these elements form a coherent framework that helps ports strengthen their environmental performance in the long term.

A number of Environmental Management Indicators (EMIs) have been defined to capture the main components of an EMS. Table 1 presents the results for the core indicators, comparing data from 2018 through 2025.

Table 1: Percentage of positive responses to the environmental management indicators

	Indicators	**2018 (%)**	**2020 (%)**	**2023 (%)**	**2024 (%)**	**2025 (%)**
A	Existence of a certified Environmental Management System (EMS) – ISO, EMAS or PERS	92	100	94	95	100
B	Existence of an Environmental Policy	100	100	100	100	100
C	Environmental Policy makes reference to international and/or national port environmental policy guidelines	75	84	76	78	71
D	Existence of an inventory of relevant environmental legislation	100	100	100	100	100
E	Existence of an inventory of Significant Environmental Aspects (SEA)	100	100	97	100	100
F	Definition of objectives for environmental improvement	92	95	91	98	95
G	Existence of an environmental training program for port employees	100	100	100	98	95
H	Existence of an environmental monitoring program	100	100	100	100	100
I	Environmental responsibilities of key personnel are documented	100	100	100	100	100
J	Publication of a publicly available environmental report	100	95	79	83	83

The 2025 results confirm a very high level of maturity in environmental management among participating ports. All ports report having a certified Environmental Management System (A), whether ISO, EMAS, or PERS. This full coverage demonstrates that structured and verifiable management systems are now the standard across the network, providing credibility, accountability, and stronger alignment with stakeholder expectations.

The existence of an Environmental Policy (B) also remains universal at 100%, serving as the foundation of port strategies and action plans. Similarly, key operational elements of an EMS, such as maintaining an inventory of relevant legislation (D), identifying significant environmental aspects (E), monitoring environmental performance (H), and documenting the responsibilities of key personnel (I), continue at 100%, underscoring the consolidation of robust environmental practices.

However, three indicators have registered modest declines compared to 2024. Fewer ports reported that their policies explicitly reference international or national guidelines (C), with a drop from 78 to 71%. Similarly, the definition of objectives for environmental improvement (F) and the implementation of training programmes for staff (G) both fell slightly to 95%.

Meanwhile, the availability of publicly accessible environmental reports (J) has stabilised at 83%, the same as last year, though still below the higher levels achieved before 2023. Ensuring transparency through regular reporting remains an area with scope for strengthening.

Table 2 below confirms that the vast majority of ports continue to communicate their environmental policy to relevant stakeholders. The figure remains high and stable, with 98% in both 2024 and 2025, after recovering from the temporary dip observed in 2023.

Table 2: Communication of environmental policy to relevant stakeholders

2018 (%)	2020 (%)	2023 (%)	2024 (%)	2025 (%)
100	100	94	98	98

Table 3 presents the proportion of ports making their environmental policy publicly available online. In contrast to the stability observed in Table 2, the percentage has declined slightly in 2025, dropping from 98% to 95%. This remains at a very high level overall, but the small decrease suggests there is scope to reinforce efforts in ensuring that policy documents are consistently accessible to external stakeholders.

Table 3: Availability of ports' environmental policy online

2018 (%)	2020 (%)	2023 (%)	2024 (%)	2025 (%)
100	100	100	98	95

Table 4 below shows the distribution among certified ports regarding the environmental standards to which the ports considered in the analysis are certified. In total 79% of the ports are already EcoPorts PERS certified, whilst about 63% of ports are ISO 14001 certified.

Table 4: Breakdown of the EMS certificates

EMS Certificate	2025 (%)
ISO	20.9
EcoPorts' PERS	37.2
ISO & EcoPorts' PERS	41.9

4.2 Environmental Management Index

The Environmental Management Index (EMI) is a comprehensive metric developed specifically as part of the EcoPorts evaluation process to calculate the overall environmental performance of a port by aggregating the ten environmental indicators presented in Table 1. Each indicator is weighted according to its significance for environmental management.

The EMI is calculated by multiplying the weighting of each indicator with the percentage of positive responses. The final score is derived using the following formula:

Environmental Management Index = A*1,5 + B*1,25 + C*0,75 + D*1 + E*1 + F*1 + G*0,75 + H*1 + I*1 + J*0,75.

The numerical value of each letter represents the percentage of positive responses divided by 100. The EMI therefore reflects the aggregate score of the environmental performance of ports, taking into account the varying importance of different aspects of environmental management. Table 5 illustrates the evolution of the EMI since 2018.

Table 5: Evolution of the Environmental Management Index over the years

EMI	2018	2020	2023	2024	2025
Environmental Management Index	9.61	9.79	9.45	9.60	9.57

The 2025 score of 9.57 confirms the continued high level of performance observed across the network in recent years. While slightly below the 2024 value, the result remains very close to the highest levels achieved since 2018, reflecting the consolidation of well-stablished environmental management. As in previous years, the Index is influenced by the number and profile of participating ports.

4.3 Port Environmental Policy and SDGs

Port Environmental Policies are expanding in scope as ports respond to both global sustainability challenges and the practical demands of local operations. Increasingly, ports are expected to incorporate international perspectives, cross-border collaboration, and active stakeholder engagement within their Environmental Management Systems (EMS). This expansion reflects not only the need to comply with regulatory frameworks but also a growing recognition of the advantages that come from adopting a comprehensive, integrated approach to sustainability.

In recent years, this has been expressed through the alignment of port policies with the principles of Environment, Social, and Governance (ESG). Environmental dimensions include efforts to cut greenhouse gas emissions, promote circular waste management practices, and increase energy efficiency, all while maintaining attention to biodiversity and habitat protection. The social dimension links directly to labour rights, supply chain standards, and occupational health and safety, while governance principles provide the framework for accountability, stakeholder balance, and long-term trust. Together, these three pillars strengthen the strategic role of the EMS as more than a compliance tool, but as a driver of resilience and responsible business.

Closely connected to this broadening perspective are the United Nations Sustainable Development Goals (SDGs). Adopted in 2015, the 17 SDGs offer a global framework for balancing economic, social, and environmental progress. Ports in the ECOSLC EcoPorts Network are increasingly referencing the SDGs in their environmental reports and communications, reflecting the awareness that port activity is embedded in global trade and socio-economic systems.

The 2025 results in Table 6 show that ports continue to engage with a wide spectrum of SDGs, though with some shifts in emphasis compared to 2024. Notably, there has been a strong increase in references to Climate Action (Goal 13), which rose from 65% to 76%, confirming its position as one of the most urgent priorities. Other significant increases are seen in Decent Work and Economic Growth (Goal 8) and Industry, Innovation, and Infrastructure (Goal 9), both reaching 62%. Improvements are also evident for Good Health and Well-being (Goal 3) and Sustainable Cities and Communities (Goal 11).

Conversely, some goals show reduced attention compared to last year. References to No Poverty (Goal 1) and Zero Hunger (Goal 2) have declined further, to 27% and 24% respectively, perhaps reflecting ports' focus on issues seen as more directly relevant to their operational and community contexts. Similarly, a decrease can be observed in Peace, Justice and Strong Institutions (Goal 16), which fell from 53% to 41%.

Table 6. Policy reference to UN Sustainable Development Goals

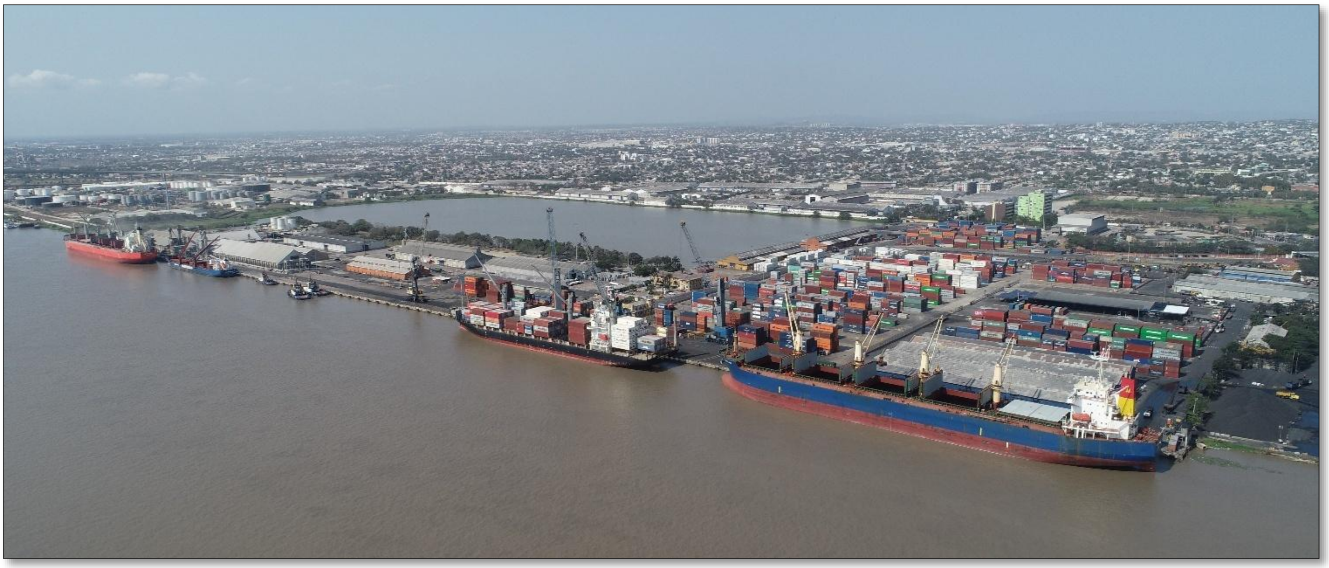
Goal	Indicator	2024 (%)	2025 (%)
1	No Poverty	35	27
2	Zero Hunger	29	24
3	Good Health and Well-being	59	65
4	Quality Education	41	49
5	Gender Equality	71	70
6	Clean Water and Sanitation	71	65
7	Affordable and Clean Energy	71	70
8	Decent Work and Economic Growth	47	62
9	Industry, Innovation, and Infrastructure	59	62
10	Reduced Inequality	59	54
11	Sustainable Cities and Communities	53	59
12	Responsible Consumption and Production	65	59
13	Climate Action	65	76
14	Life Below Water	59	65
15	Life on Land	53	54
16	Peace and Justice Strong Institutions	53	41
17	Partnerships for the Goals	53	57

Overall, the data illustrate a pattern of ports aligning most strongly with SDGs that directly intersect with their environmental footprint, operational performance, and community role, namely climate, energy, infrastructure, health, and urban sustainability. This evolving alignment suggests that while ports recognise the broad spectrum of sustainability goals, they prioritise those where their actions can have the most tangible impact. Responses will necessarily reflect local cultural, governmental and national political circumstances.

4.4 Environmental monitoring indicators

Monitoring remains a central tool for ports seeking to understand, manage, and improve their environmental performance. Without measurement, it is difficult to identify trends, evaluate the effectiveness of actions taken, or set realistic targets for improvement. By systematically collecting and analysing environmental data, ports can assess progress toward sustainability objectives, identify emerging risks, and ensure compliance with legal and regulatory requirements. Beyond supporting day-to-day management, monitoring provides the evidence base needed for transparent reporting and for building confidence among stakeholders.

As in previous years, baseline values and benchmark results provide a useful reference point for comparison across key environmental parameters. Table 7 summarises the percentage of ports monitoring each indicator from 2018 to 2025, highlighting both long-standing areas of universal coverage and other domains where monitoring remains less consistent. The ability of ports to adapt their monitoring programmes over time, integrating new parameters or strengthening existing ones, reflects the flexibility of the EMS framework. This adaptability is crucial in responding to evolving priorities, whether linked to regulation, stakeholder expectations, or the impacts of climate change.



Sociedad Portuaria Regional de Barranquilla SA, Colombia

Table 7: Percentage of positive responses to environmental monitoring indicators

Indicators	2018 (%)	2020 (%)	2023 (%)	2024 (%)	2025 (%)
Air quality	100	100	97	98	98
Water quality	100	100	97	93	95
Port waste	100	100	100	95	93
Water consumption	100	95	94	95	93
Noise	100	100	88	93	93
Energy efficiency	100	89	88	90	83
Carbon Footprint	67	68	73	73	80
Waste recycling	91	100	85	73	78
Sediment quality	100	84	79	73	78
Ship waste	91	84	85	73	71
Marine ecosystems	75	74	76	63	63
Soil quality	67	68	67	63	59
Terrestrial habitats	58	63	58	55	56

The 2025 results confirm that air quality remains the highest priority, with nearly all ports maintaining monitoring in this area (98%). This consistency reflects the close relationship between air quality, port operations, and climate-related impacts. Similarly, monitoring of water quality has improved slightly compared to 2024 (rising from 93% to 95%), underlining the importance of water management for both environmental and community concerns.

Some indicators, however, show a slight decline. Monitoring of port waste and water consumption has dropped to 93%, suggesting that while still widespread, not all ports maintain the same level of consistency as in earlier years. Noise monitoring remains stable at 93%, demonstrating continued recognition of its significance for surrounding communities.

More notable shifts are visible in other areas. Energy efficiency monitoring has fallen from 90% in 2024 to 83% in 2025, a decrease that stands out given the increasing global emphasis on energy transition and decarbonisation. In contrast, the tracking of carbon footprint has risen substantially, from 73% to 80%, reflecting ports' growing commitment to climate action and their alignment with international sustainability agendas.

Encouragingly, monitoring of sediment quality and waste recycling has also recovered after lower figures in 2024, both rising to 78%. These improvements may indicate renewed attention to circular economy practices and the ecological impacts of dredging and sediment management.

In contrast, the indicators linked to marine ecosystems, soil quality, and terrestrial habitats remain the least widely monitored. Marine ecosystems remain unchanged at 63%, while soil quality has declined further to 59%. Terrestrial habitats show only a marginal increase, from 55% to 56%. These areas continue to represent a relative weakness in monitoring efforts, despite their importance for biodiversity protection and long-term ecosystem resilience, and as a potential consideration for port development over land.

Taken together, the 2025 results highlight both stability and change. The core parameters (air, water, waste, and noise) continue to be well covered, demonstrating the maturity of environmental management practices in ports. At the same time, the significant rise in carbon footprint monitoring marks a shift towards greater climate accountability. The weaker figures for ecosystem-related indicators suggest that more effort is needed to integrate biodiversity and habitat concerns into port monitoring frameworks, an area likely to gain importance in the coming years.

Port of Galeota, Trinidad and Tobago

4.5 Climate change: operational impacts and adaptation

The ECOSLC network of EcoPorts members represents a highly diverse range of ports and terminals across different geographies, climates, and operational profiles. Within this diversity, the 2025 survey shows a shift of the previous downward trend in the number of ports reporting operational challenges linked to climate change. As presented in Table 8, positive responses have increased from 30% in 2024 to 44% in 2025. This recovery brings the figure closer to the levels observed in 2020 and 2023, suggesting that climate-related effects may now be more visible, or that awareness and reporting have improved. Nevertheless, the proportion remains lower than in 2018, which may reflect different experiences of climate impacts across regions and the fact that the ports responding to the SDM are not exactly the same each year, which can influence the observed differences.

Table 8: Share of ports experiencing operational challenges related to climate change

2018 (%)	2020 (%)	2023 (%)	2024 (%)	2025 (%)
58	42	45	30	44

In parallel, the 2025 results show a clear increase in the number of ports adapting existing infrastructure to enhance climate resilience. After remaining stable at 58% in both 2023 and 2024, the figure has risen to 71% in 2025 (Table 9). This suggests that many ports are now taking more tangible steps to strengthen their assets against climate-related risks, whether through reinforcement of existing structures, flood protection measures, or other forms of adaptation.

Table 9: Share of ports adapting existing infrastructure to increase resilience

2018 (%)	2020 (%)	2023 (%)	2024 (%)	2025 (%)
75	68	58	58	71

When it comes to new infrastructure, ports are also showing stronger attention to climate considerations. As shown in Table 10, the share of ports reporting that they take climate adaptation into account in new infrastructure projects has grown from 73% in 2024 to 78% in 2025, the highest figure recorded since the start of the survey. This upward trend reflects the growing integration of resilience planning into forward-looking investment strategies, where the costs of inaction are increasingly recognised.

Table 10: Share of ports considering climate adaptation for new infrastructure

2018 (%)	2020 (%)	2023 (%)	2024 (%)	2025 (%)
75	74	70	73	78

In the ECOSLC SDM questionnaire, ports are invited to identify their major concerns regarding the actual and potential impacts of climate change. By identifying and ranking these issues, ports increase awareness and gain guidance for developing their environmental management strategies and sustainability programmes. As always, local conditions and site-specific circumstances remain decisive in determining which concerns are given highest priority. The 2025 results, shown in Table 11, highlight some changes in emphasis compared with the previous year.

Table 11. Major concerns from the impact of climate change

Indicator	2024 (%)	2025 (%)
Sea-level rise	76	78
Damage to marine ecosystems	82	70
Damage to infrastructure	71	70
Localised flooding	76	65
Changes in hydrography (including currents)	59	62
Coastal erosion	65	62
Biodiversity loss	59	57
Water supply	59	54
Fires	59	51
Drought	65	43
Disease and pests	41	41
Heat waves/stress	35	32
Saltwater intrusion	29	24
Acidification	29	24
Fisheries failing	24	22
Coral reef bleaching	12	8

Sea-level rise has emerged as the most frequently cited concern, with 78% of ports identifying it as a significant issue, an increase from 76% in 2024. This reflects the continuing relevance of long-term sea-level projections for coastal infrastructure and port operations. Damage to marine ecosystems, which was the top concern in 2024 (82%), has declined to 70% in 2025. While still a key issue, this shift may suggest that awareness is stabilising or that other risks are gaining relative importance. Damage to infrastructure remains a prominent concern, also at 70%, underlining the strong operational and commercial implications of climate impacts.

Other environmental concerns have shown mixed trends. Localised flooding is reported by 65% of ports, slightly down from 76% in 2024. Changes in hydrography, including currents, are being recognised more frequently (62% compared to 59% in 2024), as are coastal erosion (62%). By contrast, reported concerns over drought have dropped substantially (from 65% to 43%), as have those related to water supply (from 59% to 54%) and fires (from 59% to 51%). The lowest-scoring indicators remain fisheries failure (22%) and coral reef bleaching (8%), both of which reflect concerns of more regional or ecosystem-specific relevance rather than universal port impacts.

An increasingly important dimension of port sustainability is the establishment of clear targets to reduce greenhouse gas (GHG) emissions and other air pollutants. For the first time, the 2025 survey introduced new indicators to assess the extent to which ports have adopted such commitments. These indicators provide a valuable baseline, showing how ports are beginning to set their own reduction targets, align with local objectives, and implement measures such as low-emission zones. Table 12 presents the first set of results for these new indicators, highlighting the current level of commitment across the sector.

Table 12: Adoption of emission reduction and zero-emission targets by port authorities

Indicator	2025 (%)
Has the Port Authority set up its own GHG reduction target?	73
Has the Port Authority set up its own air emissions reduction target?	63
Is the Port Authority aligned with any local authority GHG and air emissions reduction targets?	68
Have low emissions zones and/or emission berth standards been introduced in the port area?	34
Does the Port Authority have a zero-emission target for the emissions related to port activities and operations?	51

The 2025 survey results reveal that nearly three-quarters of responding ports (73%) have now set their own GHG reduction targets. This represents a significant level of commitment, underscoring the recognition of climate change mitigation as a central element of port strategy. In addition, 63% of ports report having specific targets for air emissions reduction, reflecting the strong connection between air quality, health, and local community impacts. Coordination with local authorities is also evident: 68% of port authorities indicate that they are aligned with regional or municipal emission reduction goals. This suggests that ports increasingly see themselves as active partners in broader urban and regional sustainability frameworks.

More operationally focused measures are also beginning to emerge. Low-emission zones and emission berth standards have been introduced in 34% of ports. While still relatively limited in scope, these measures point to a growing interest in directly regulating activities within the port area to reduce localised air pollution and improve community well-being. Finally, half of the ports (51%) report having adopted a zero-emission target for emissions related to their activities and operations. This is a significant development, demonstrating that many ports are beginning to look beyond incremental reductions toward a longer-term vision of decarbonisation.

4.6 Top 10 Environmental priorities

The list of the Top 10 environmental priorities reported by ports provides valuable insight into the issues that are currently shaping strategies, resource allocation, and stakeholder engagement. The ranking helps to focus attention on concerns of high importance, from regulators and policymakers to port managers, supply chain operators, and local communities. The 2025 results, presented in Table 13, confirm both continuity in some priorities and change in others.

Table 13: Top 10 Environmental priorities for Members of ECOSLC Network

	2018	2020	2023	2024	2025
1	Air quality	Air quality	Air quality	Air quality	Air quality
2	Dust	Dust	Garbage/port waste	Garbage/port waste	Garbage/port waste
3	Garbage/Port waste	Climate change	Dust	Dust	Climate change
4	Energy consumption	Garbage/Port waste	Climate change	Energy consumption	Energy consumption
5	Hazardous cargo	Local community	Energy consumption	Climate change	Dust
6	Local community	Energy consumption	Water quality	Water quality	Water quality
7	Climate change	Ship exhausts	Local community	Local community	Cargo spillage
8	Water quality	Hazardous cargo	Cargo spillage	Cargo spillage	Hazardous cargo
9	Port development Land	Cargo spillage	Hazardous cargo	Noise	Local community
10	Port development Water	Water quality	Noise	Hazardous cargo	Noise

Air quality once again occupies the top position across all surveyed years, reflecting its continued relevance for port operations, workforce health, and neighbouring communities. Garbage and port waste remain in second place, highlighting the strong emphasis on waste management as a core environmental responsibility.

A notable shift this year is the rise of climate change to third place, its highest position since the survey began. This suggests a growing recognition of climate-related risks, consistent with the broader trend of ports adopting GHG reduction targets and adaptation measures. Energy consumption continues to hold fourth place, underlining the operational and financial significance of efficient energy use. Dust, although still prominent, has dropped in the ranking and now appears in fifth position.

Other recurring priorities include water quality (6th), which remains steady in the middle of the list, cargo spillage, which reaches the 7th place, and hazardous cargo (8th), an issue directly linked to safety, compliance, and environmental risk. Finally, local community concerns remain present in the list although at a lower position (9th), and noise remains among the Top 10 (10th), reflecting that it continues to be a notable concern for port-community relations.

The 2025 ranking illustrates how ports are balancing local concerns (such as air quality, waste, and dust) with global issues like climate change and energy consumption. The continued inclusion of community-related topics (noise and local community) indicates that societal considerations remain integrated into environmental management approaches. This mixture of priorities reflects both the global and site-specific dimensions of sustainability challenges faced by ports today.

4.7 Green services to shipping

As central nodes in the transport system located at the critical land-sea interface, ports are well placed to influence the environmental performance of operators and tenants by offering a variety of incentives to minimize the impacts of activities and procedures. This includes reducing maritime emissions of greenhouse gases and pollutants. The evolving encouragement and facilitation of green services is helping to deliver cleaner and more efficient shipping, which brings local benefits in terms of air quality, energy consumption and noise, while also contributing to the broader decarbonization of the maritime sector. In this section, the performance of Onshore Power Supply (OPS), the provision of Liquefied Natural Gas (LNG), and the application of Environmentally differentiated port fees will be reviewed to illustrate how ports are supporting this transition.

Onshore Power Supply (OPS)

Among the most relevant indicators in this area is the availability and planning of Onshore Power Supply (OPS), a service allowing ships to connect to shore-based electricity while docked. OPS enables vessels to power down their auxiliary engines, reducing exhaust emissions, particulate matter, noise and vibrations in the port area. Table 14 presents the percentage of positive responses to OPS-related questions in the SDM questionnaire from 2018 to 2025.

Table 14: Percentage of positive responses to Onshore Power Supply (OPS) indicators

Indicator	2018	2020	2023	2024	2025
Is Onshore Power Supply (OPS) available at one or more berths?	83	63	55	55	54
If yes, what type of OPS is available?					
High voltage*	70	50	56	32	20
Low voltage*	70	83	78	82	44
If YES, is OPS provided through:					
By fixed installation*	100	100	100	100	54
By mobile installation*	20	8	17	14	12
Does the port plan to offer OPS during the next two years?	33	32	39	35	27
If NO, Has the port faced any technical challenges with regard to:					
Unavailable or insufficient grid infrastructure in or surrounding the port	--	--	--	35	37
Issue with frequency conversion due to the OPS onboard the vessel(s) using a different frequency than what is available on the national grid	--	--	--	30	24
Insufficient or unavailable grid capacity	--	--	--	23	27

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

The trend shows a gradual decline in the availability of OPS at one or more berths, from 83% in 2018 to 54% in 2025. Similarly, the availability of high-voltage OPS has decreased substantially, reaching only 20% in 2025, while low-voltage OPS dropped from 82% in 2024 to 44% in 2025.

OPS provision through fixed installations (traditionally the most common approach) fell from 100% in previous years to 54% in 2025. Provision through mobile installations also declined slightly, from 14% in 2024 to 12% in 2025.

The percentage of ports planning to offer OPS within the next two years has also decreased, from 35% in 2024 to 27% in 2025. This indicates that the surveyed ports are showing more caution or uncertainty about making new OPS investment.

For ports that do not currently offer OPS, technical challenges continue to represent significant barriers. In 2025, 37% of ports reported insufficient or unavailable grid infrastructure (up from 35% in 2024), while 27% pointed to insufficient grid capacity (compared with 23% in 2024). The frequency conversion issue (a mismatch between vessel systems and national grid frequencies) was noted by 24% of ports, down from 30% in 2024.

These findings indicate that while OPS remains a key element of green services to shipping, its deployment is increasingly constrained by infrastructure limitations, capacity challenges, and cost considerations, including the comparatively high cost of electricity and port charges. Overcoming these barriers will be essential if ports are to expand OPS and take maximum advantage of its environmental benefits in advancing shipping decarbonization.

Liquefied Natural Gas (LNG)

Ports providing LNG bunkering facilities support the use of cleaner alternative fuels for ships. LNG has been promoted as a transitional fuel with a lower carbon footprint compared to traditional marine fuels, contributing to reductions in greenhouse gas emissions and air pollutants. The survey findings are summarised in Table 15.

Table 15: Percentage of positive responses to Liquefied Natural Gas (LNG) indicators

Indicator	2018	2020	2023	2024	2025
Is Liquefied Natural Gas (LNG) bunkering available in the port today?	0	0	0	0	0
If YES, how is LNG bunkered in the port?					
By non-mobile installation*	0	0	0	0	0
By truck*	0	0	0	0	0
By barge*	0	0	0	0	0
Are there currently ongoing LNG bunkering infrastructure projects in the port?	0	5	3	0	0
Do plans exist for the development of LNG bunkering facilities during the next two years?	0	11	9	5	0
If NO, Are there any projects under development for infrastructure of other clean fuels?					
Hydrogen	--	--	--	15	12
Ammonia	--	--	--	15	12
Biofuels	--	--	--	13	15
Synthetic fuels	--	--	--	10	10
Methanol/methane	--	--	--	3	7

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

Among EcoPorts Network members outside Europe, the survey results continue to show no uptake of LNG bunkering facilities. In 2025, no ports reported offering LNG bunkering through non-mobile installations, trucks, or barges. Furthermore, there are no ongoing LNG bunkering infrastructure projects, and for the first time since 2020, none of the surveyed ports indicated plans to develop LNG facilities in the next two years. This represents a clear shift from previous years, when a small proportion (up to 11% in 2020) reported intentions to introduce LNG bunkering.

Instead, ports outside Europe appear to be focusing on alternative clean fuels beyond LNG. In 2025, 12% of ports reported projects under development for hydrogen and ammonia infrastructure, while interest in biofuels increased to 15%. Projects for synthetic fuels (10%) and methanol/methane (7%) were also reported. These results suggest a strategic reorientation: while LNG continues to be relevant in other regions, ports outside Europe are directing their attention towards fuels perceived to have greater long-term potential for deep decarbonization.

Environmentally Differentiated Port Fees

Environmentally differentiated port fees are an important instrument to incentivize cleaner and more sustainable shipping practices. By offering reductions in port infrastructure charges to vessels that demonstrate better environmental performance, port authorities can encourage the use of cleaner fuels, emission-reduction technologies, energy efficiency measures, and improved waste management. An overview of the survey results is provided in Table 16.

Table 16: Percentage of positive responses to Differentiated dues for "Greener vessels" indicators

Indicator	2018	2020	2023	2024	2025
Does the port offer differentiated dues for "Greener vessels"?	8	11	6	13	22
If YES, Does the incentive scheme take into account the following?					
Waste management/segregation*	0	0	50	0	2
Air emissions (NO_x, SO_x, PM) reduction*	100	100	100	80	12
GHG emissions reduction*	100	50	50	40	12
Noise reduction*	0	0	50	20	2
Environmental certification*	0	0	50	40	7
Ships with wind assisted*	0	0	0	0	2
Does the port plan to introduce environmentally differentiated port dues during the next two years?	8	11	21	28	27

*The percentage of the different initiatives are calculated on the basis of the ports offering differentiated dues for "Greener Vessels", not out of the total of participating ports.

The 2025 results show a clear increase in the adoption of differentiated port dues: 22% of ports now offer incentive schemes for greener vessels, compared to 13% in 2024. This confirms the growing recognition of fee differentiation as a useful tool for aligning shipping operations with broader sustainability objectives.

However, when looking at the criteria applied within these schemes, the survey indicates that the scope remains relatively limited. While in earlier years air emissions dominated as a core element of the schemes, in 2025 only 12% of ports applying incentives report linking them to air emissions or GHG reduction performance. Other criteria, such as waste management and segregation, noise reduction, environmental certification, or incentives for ships with wind-assisted propulsion, are applied only sporadically.

Looking ahead, 27% of ports report plans to introduce environmentally differentiated dues within the next two years, indicating steady momentum. Although current schemes may be limited in scope, the increasing number of ports exploring such measures suggests that differentiated fees are becoming a more mainstream instrument for incentivizing sustainable shipping practices.

Ho-Ping Industrial Port Corporation, Taiwan

4.8 Clean fuels for cars and trucks

Ports are increasingly recognized as key facilitators of the transition to cleaner transport systems, not only for maritime operations but also for land-based mobility within and around the port area. By supporting the adoption of clean fuels for cars and trucks, ports can play an active role in reducing local air emissions, improving energy efficiency, and demonstrating leadership in advancing sustainable transport solutions. An overview of the survey findings is provided in Table 17.

Table 17: Percentage of positive responses to clean fuels for cars and trucks indicators

Indicator	2024 (%)	2025 (%)
Are electricity charging stations for cars and/or trucks available at the port?	30	37
Are hydrogen fueling stations for trucks available at the port?	0	0

The 2025 results indicate progress in the provision of electric charging infrastructure: 37% of ports now report having charging stations for cars and/or trucks available on site, compared to 30% in 2024. This steady increase reflects growing investment in electrification and alignment with broader trends in sustainable urban mobility.

In contrast, no ports currently report the availability of hydrogen fuelling stations for trucks, a result unchanged from 2024. While hydrogen continues to be highlighted in strategic discussions and development plans in some regions, the survey suggests that deployment in port areas outside Europe remains at an early stage, with concrete infrastructure yet to materialize.

4.9. Continuous improvement and sustainability

Continuous improvement remains a core element of Environmental Management Systems (EMS), supported by certification schemes such as PERS, ISO 14001 and EMAS. Integrating this principle with sustainability objectives ensures that ports can demonstrate progress and align with broader policy and investor expectations, including the UN Sustainable Development Goals (SDGs). The 2025 survey results show positive developments in key areas, presented in Table 18.

Table 18: Percentage of positive responses to objective of sustainability

Indicator	2024 (%)	2025 (%)
Has the port undertaken a materiality assessment to identify its material environmental issues?	76	81
Does the Environment Policy of the port consider Environmental Sustainability issues?	76	81
Has the port undertaken a climate change risk/opportunity assessment?	65	62

The 2025 results indicate further consolidation of this trend. The share of ports undertaking a materiality assessment to identify key environmental issues has risen from 76% in 2024 to 81% in 2025. The same increase is observed in the share of ports whose Environmental Policy explicitly considers sustainability issues (also 81%). These findings demonstrate a strengthening of the strategic foundation for sustainability across the sector. By contrast, the percentage of ports reporting a climate change risk/opportunity assessment has declined slightly from 65% in 2024 to 62% in 2025. While still representing a majority, this result suggests that climate risk assessments remain an area where further progress and consolidation are needed.

5. On-going challenges and positive opportunities

The results of the analysis confirm the on-going and often pro-active actions taken by Port Authorities in dealing with their environmental responsibilities 24/7 set in the context of ever-more demanding scrutiny by communities and social media.

The circumstances and background within which a port or terminal must operate its Environmental Management System (EMS) are arguably changing at a greater rate than ever previously experienced by the sector. The economic, political and social contexts themselves are being transformed almost day-by-day, requiring appropriate adjustments, adaptations and innovation in order to achieve compliance and sustainability.

There is increasing pressure on environmental managers to actually demonstrate the port's competence to comply with its liabilities and responsibilities to an ever-widening range of interested stakeholders. The multifarious complex of EMS necessarily needs to be firmly established within the business plan of each authority in order to both achieve, and serve, the objective of sustainable development of such a wide range of activities and operations.

As the range of potential environmental impacts expands in line with on-going amendments and additions to legislation and regulation, so the requirements for monitoring and reporting become even more important as the sector deals with the changes in trends and priorities of the perceived environmental priorities.

The ESG (Environmental, Social, Governance) approach is being widely adopted as a broad framework option to measure a port or terminal's performance and impact on sustainability which itself has a target of ensuring long-term security for systems, communities and the planet without causing harm or distress. ESG provides investors and organizations with metrics to assess risks and opportunities related to environmental stewardship, social responsibility, and corporate governance, thereby evaluating a company's progress toward its sustainability goals. As a result, environmental performance is increasingly being reported within the overall framework of sustainability.

The continuing broadening of the scope of environmental management (the functional organization necessary to deliver environmental protection and sustainable development to the highest possible standards of compliance and accountability) highlights the requirement for a robust, yet flexible framework of EMS that assists the sector with its policy of 'a level playing-field' and 'fixed goal-posts', and yet reflects the site-specific circumstances and unique characteristics of each individual authority. It may reasonably be argued that the EcoPorts network, structure, tools (SDM) and standard (PERS) stands the test of time and continues to provide the procedures and processes of a practicable EMS dedicated to the port sector.

At a time of increasing public scrutiny, media pressure and political opinion, the fact that the sector has established its own, independently assessed International Standard for EMS certification (EcoPorts PERS) gives a strong signal of experience, proficiency and capability to bring influence to bear on both policy- and law-makers. Effective EMS requires a collaborative approach across a range of scales of consideration where the long-established adage of 'think global, act local' continues to maintain its relevance for the whole, international sector.

Arguably, the pace of change in the scope and setting within which the environmental imperative must be applied and managed has never evolved more quickly than now, and the rate with which new challenges emerge is likely to quicken even more in the near future. The environmental performance reported for 2025 demonstrates that a pro-active, integrated and collaborative approach facilitates compliance, environmental protection and elements of sustainability to the mutual benefit of the sector, its stakeholders including communities and the environment itself.

Puerto de Tocopilla SQM, Chile

ANNEX I: List of EcoPorts network members

The 43 ECOSLC EcoPort Network port members of 2025 sample are:

Puerto Bahia Blanca	Argentina
Port of Bell Bay - Tasports	Australia
Port of Burnie - Tasports	Australia
Port of Devonport – Tasports	Australia
Port of Hobart - Tasports	Australia
Gladstone Ports Corporation	Australia
Port of Newcastle	Australia
Cotonou	Benin
Porto do Açu	Brasil
Port of Paranaguá	Brasil
Puerto Ventanas	Chile
Empresa Portuaria Antofagasta	Chile
Antofagasta Terminal Internacional (ATI)	Chile
Terminal Pácifico Sur Valparaíso (TPSV)	Chile
Puerto de Tocopilla SQM	Chile
Terminal Maritimo de Quintero / Oxiquim	Chile
Terminal de Contenedores de Cartagena S.A. (Contecar)	Colombia
Sociedad Portuaria Regional de Cartagena S.A. (SPRC)	Colombia
SP Riverport S.A. (Barranquilla)	Colombia
Sociedad Portuaria Regional De Barranquilla SA	Colombia
ANDIPUERTO TERMINAL - ANDIPUERTO GUAYAQUIL S.A.	Ecuador
Batumi Sea Port LLC	Georgië
Jordan Industrial Ports Company	Jordan
JSC NC Aktau International Commercial Seaport	Kazakhstan
Administracion del Sistema Portuario Nacional Lázaro Cárdenas, S.A. de C.V.	Mexico
Administración del Systema Portuario Nacional Ensenada, S.A. DE C.V.	Mexico
NLNG	Nigeria
Terminal Internacional del Sur	Peru
Terminal Portuario Paracas S.A.	Peru
Hamad port	Qatar
TIPC – Hualien	Taiwan
TIPC – Kaohsiung	Taiwan
Mailiao Industrial Harbor / Mailiao Harbor Administr. Corp.	Taiwan
TIPC - Taipei Port	Taiwan
Port of Anping TIPC	Taiwan
Ho-Ping Industrial Port Corporation	Taiwan
Port of Keelung - TIPC	Taiwan
Port of Suao TIPC	Taiwan
Port of Taichung TIPC	Taiwan
Port of Brighton (LAMBIDCO)	Trinidad/ Tobago
Port of Galeota (Nat. Energy Corp.)	Trinidad/ Tobago
Ortadoğu Antalya Liman İşletmeleri A.Ş.	Turkey
MONTEVIDEO PORT AUTHORITY (Administración Nacional de Puertos)	Uruguay