



**OCEAN
STEWARDSHIP
COALITION**



UN GLOBAL COMPACT **SUSTAINABLE OCEAN PRINCIPLES**

PRACTICAL GUIDANCE – PORTS



TABLE OF CONTENTS

1. THE UN GLOBAL COMPACT SUSTAINABLE OCEAN PRINCIPLES	03
2. THE GUIDANCE	04
PRACTICAL GUIDANCE - PORTS	06
Scope of the sector	06
Authors and Consultative Group	06
2.1 OCEAN HEALTH AND PRODUCTIVITY	08
Challenges and opportunities of the sector/ relevance	08
Partnerships of relevance	09
Principle 1	10
Principle 2	12
Principle 3	14
Principle 4	17
2.2 CLIMATE RESILIENCE AND PORTS	19
Challenges and opportunities of the sector/ relevance	19
Partnerships of relevance	21
Guidance	21
Case Studies	22
2.3 JUST ENERGY TRANSITION	23
Challenges and opportunities of the sector/ relevance	23
Reporting Regimes	24
Partnerships of relevance	24
Guidance	24
Case Studies	24
2.4 GOVERNANCE AND ENGAGEMENT	25
Challenges and opportunities of the sector/ relevance	25
Reporting Regimes	25
Partnerships of relevance	25
Principle 5	26
Principle 6	27
Principle 7	28
2.5 FINANCE	30
Challenges and opportunities of the sector/ relevance	30
Partnerships of relevance	31
Guidance	31
Case Studies	32
2.6 DATA AND TRANSPARENCY	33
Challenges and opportunities of the sector/ relevance	33
Principle 8	34
Principle 9	34
Case Studies	35

THE GUIDANCE DOCUMENT

1. THE UN GLOBAL COMPACT SUSTAINABLE OCEAN PRINCIPLES

The UN Global Compact has, in consultation with more than 300 stakeholders worldwide, developed the [Sustainable Ocean Principles](#). The purpose is to promote the well-being of the ocean for current and future generations, as well as to emphasize the shared responsibility of businesses to take necessary actions to secure a healthy and productive ocean.

The nine principles cover three areas: ocean health and productivity; governance and engagement; and data and transparency. Signatories confirm their endorsement of the principles, setting out a framework for responsible business practices across relevant sectors and geographies. The principles build upon and supplement the overarching [Ten Principles of the UN Global Compact](#), including the fundamental responsibilities in the areas of human rights, labour, environment, and anti-corruption.

The principles are relevant for companies with activities that may impact ocean health and companies that are part of an ocean productivity value chain. The principles are, therefore, also relevant for land-based industries, including the financial sector. The principles are directed at company boards and executive management. They are designed as a tool for moving beyond minimum standards and towards excellence in sustainability. They can be used as a basis for due diligence assessments and serve as a reference point for interaction between companies on sustainable uses of the ocean.

Companies should understand the broader environmental and social consequences of their activities. Companies should ensure that material ocean-related risks and opportunities are integrated in corporate strategy, risk management, and reporting. They should ascertain that the ensuing responsibilities are clearly defined within the organization. The company board should effectively guide, monitor and review company management in these efforts.

The principles are not introducing a new set of reporting measures, but rather encourage companies to use existing mechanisms to disclose their practices.

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2. THE GUIDANCE

WHAT?

This guidance document is complementary to the UN Global Compact Sustainable Ocean Principles and is intended to broadly outline ways to operationalize these nine principles to specific industry sectors. The guidance aims at guiding signatories on how they can deliver on the principles in practical terms.

WHY?

The guidance aims at identifying shared challenges, common solutions, risks, opportunities, relevant partnerships, and reporting frameworks needed to help operationalize the principles.

WHO?

First and foremost, the audience is a set of companies operating in the sector targeted by the guidance. The guidance may also be used by financial institutions and insurers as a due diligence tool and to inform their decisions. The guidance may also support policymakers and civil society organizations to better understand the challenges, opportunities, regulations, and standards of the sector.

HOW?

The document starts with an introduction presenting the authors and contributors, defining the scope of the document and general considerations for the sector, in line with the preamble of the Sustainable Ocean Principles.

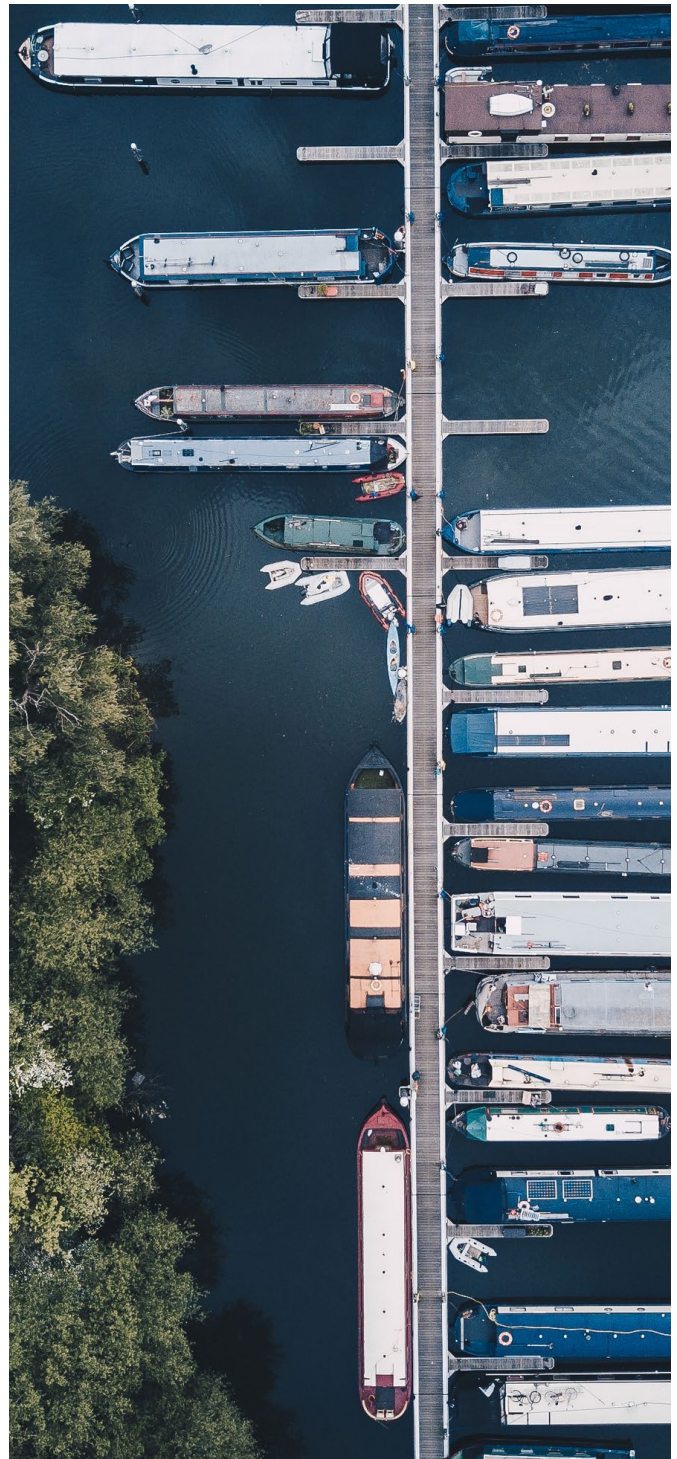
The guidance is organized in six sections. Three sections outline the cross-cutting themes of climate resilience, just energy transition, and finance and the other three sections follow the overarching themes of the Sustainable Ocean Principles:

- OCEAN HEALTH AND PRODUCTIVITY
- GOVERNANCE AND ENGAGEMENT
- DATA AND TRANSPARENCY

For each of these sections, the guidance describes the main challenges and opportunities of the sector.

The document also highlights relevant reporting frameworks and partnerships which will help companies in the implementation of the principles.

Under each principle, the document seeks to provide clear and practical tools on how to implement the principles in business operations. In order to inspire companies, the document also identifies good practices from companies or initiatives.





Sustainable Ocean Principles

The ocean is vital to the wellbeing and prosperity of humankind. To achieve the world community's ambitions as laid out in the Sustainable Development Goals, there is a need to expand our use of the ocean to produce food, energy, raw materials and transportation. Carrying out these activities in a sustainable manner will contribute to reducing global warming and environmental degradation. Ensuring a healthy ocean provides significant opportunities for business and global economic growth.

As described in Sustainable Development Goal 14 on Life Below Water, there is an urgent need to protect and restore the health of the ocean, which is rapidly deteriorating due to increasing temperatures, acidification, depletion of natural resources and pollution from land and sea. Businesses have a shared responsibility, alongside Government and civil society, to take necessary actions to secure a healthy ocean.

These Sustainable Ocean Principles provide a framework for responsible business practices across sectors and geographies. They build upon and supplement the Ten Principles of the United Nations Global Compact on human rights, labour, environment, and anti-corruption. We, as signatories of these principles, recognize the urgency and global importance of a healthy ocean, and will take action to promote the well-being of the ocean for current and future generations. As relevant to their business, we believe that companies should:

OCEAN HEALTH AND PRODUCTIVITY

Principle 1: Assess the short- and long-term impact of their activities on ocean health and incorporate such impacts into their strategy and policies.

Principle 2: Consider sustainable business opportunities that promote or contribute to restoring, protecting or maintaining ocean health and productivity and livelihoods dependent on the ocean.

Principle 3: Take action to prevent pollution affecting the ocean, reduce greenhouse gas emissions in their operations to prevent ocean warming and acidification, and work towards a circular economy.

Principle 4: Plan and manage their use of and impact on marine resources and space in a manner that ensures long-term sustainability and take precautionary measures where their activities may impact vulnerable marine and coastal areas and the communities that are dependent upon them.

GOVERNANCE AND ENGAGEMENT

Principle 5: Engage responsibly with relevant regulatory or enforcement bodies on ocean-related laws, regulations and other frameworks.

Principle 6: Follow and support the development of standards and best practices that are recognized in the relevant sector or market contributing to a healthy and productive ocean and secure livelihoods.

Principle 7: Respect human-, labour- and indigenous peoples' rights in the company's ocean related activities, including exercise appropriate due diligence in their supply-chain, consult and engage with relevant stakeholders and communities in a timely, transparent and inclusive manner, and address identified impacts.

DATA AND TRANSPARENCY

Principle 8: Where appropriate, share relevant scientific data to support research on and mapping of relevance to the ocean.

Principle 9: Be transparent about their ocean-related activities, impacts and dependencies in line with relevant reporting frameworks.

PRACTICAL GUIDANCE – PORTS

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SCOPE OF THE SECTOR

Ports constitute critical infrastructure that sits at the land-water interface through which a large number of activities are conducted: They are crucial linkages to transport across the supply chain and are critical for access to global markets for all countries. Large ports are usually linked to coastal urban agglomerations and major contributors to employment and economic output (GDP). Activities include the transport of goods in a variety of forms — such as containers and bulk cargo — and people traveling for work or leisure. Ports also host a large variety of activities that include cargo loading and unloading, port maintenance (e.g., dredging), logistics (e.g., cargo storage and distribution), transport, food processing, manufacturing (including of vessels and offshore infrastructure), power generation, inspections (e.g., ship safety), and administration. Ports and marinas also play a critical role in providing a safe harbour in case of accidents and adverse weather and are also critical in the context of DRR, notably disaster response, recovery and reconstruction.

This variety of activities means that ports are central to many ocean-based activities and are, therefore, critical to sustainable ocean aspirations. Ports can also be characterized along other dimensions such as governance — which may be private, public or a hybrid — and are often essential assets for regional and national governments. The variety of governance models influence how ports operate and are financed. Finally, and taking a systems viewpoint, ports can exert pressures over a wider geographic domain including, but not limited to, offshore activities such as renewable energy as well as governing the probity of offshore activities (i.e., through inspection of seafood landings to ensure catches have been legally fished).

The variety in scope and operation makes the development of sector guidance challenging — even more so when some ports see themselves very narrowly as a trade connection and nothing more, while other ports claim a wider shaping role through, for example, port-city and other initiatives.

Motivation for sustainability action by ports depends on a number of factors that vary across the globe and the relative priority given to economic versus environmental and social considerations. The relative prioritization of these elements varies according to the country context in which ports operate as well as the propensity of port organizations to take a greater-than-profit perspective. Therefore, the actions outlined in this document may be constrained by country-level port governance regimes, ownership profiles and stakeholders' demand (from seeing ports as a pure trade nexus to seeing them as leverage points for social, environment and economic development). In addition, the actions outlined in the guidance may already be 'best practice' for some ports but significantly ambitious for others. Regardless, the guide seeks to demonstrate a range of aspirational possibilities for all ports and serves as a prompt to find ways to overcome barriers to achieve greater sustainability performance.

INTRODUCING THE PRACTICAL GUIDANCE:

This Practical Guidance has been structured along six themes. Three are derived directly from the Sustainable Ocean Principles: Ocean Health and Productivity, Governance and Engagement, and Data and Transparency. Given the complexity and the many interrelations of the port sector, the consultative group extended the focus of this report to include three additional themes that are of particular relevance to ports: Climate Resilience, Just Energy Transition, and Finance.

In view of the severe implications of climate change on ports, in part due to the vulnerability of critical infrastructure in many regions, particular attention was given to *climate resilience*.

A focus was also placed on a just *energy transition* given its role in helping ensure a more fair and equitable change distribution of wealth and income in communities that depend on port and ocean activities. This is of particular relevance considering the impact that port activities can have on economic development and the tendency of climate change to disproportionately affect demographics and social groups that are already the most disadvantaged.

Since their creation, it has become apparent that the implementation of the Sustainable Ocean Principles is dependent on adequate financial incentives and on the development of financial instruments and metrics that can inform financial decision-making as it relates to sustainability. As ports are often the location of large infrastructure development projects and as port authorities often participate in the coordination of port industrial cluster development plans, the *financial dimension* is critical in the uptake of the Sustainable Ocean Principles in ports.

2.1 OCEAN HEALTH AND PRODUCTIVITY

CHALLENGES AND OPPORTUNITIES OF THE SECTOR/RELEVANCE

The port sector operates at the intersection between water and land, as well as often being located adjacent to important ecosystems. At the same time, ports are often found in proximity to large industrialized and urbanized areas and are exposed to anthropogenic pressures as well as being co-located with industrial clusters. While cargo is loaded, unloaded, and stored at ports, industrial processing and logistics activities connected to this cargo are also carried out there. For this reason, refineries, chemical plants, steel mills and smelting activities, as well as power plants, can often be found within the port boundaries or in close proximity. Ports are also important for passenger transport, being the connecting points of extensive ferry and cruise networks. They are also instrumental for ocean-related activities such as fisheries and offshore wind, which, without ports, could simply not take place.

Inevitably ports are characterized by a large number of actors, often with conflicting interests, that go well beyond the juridically defined boundaries of a port area. These actors include the terminal operating companies, the industries operating in and from the port, port-city dwellers, environmental compliance agencies, customs administration and civil society. The economic benefits associated with port activities can extend way beyond the port or the port region boundaries, as the connectivity provided by ports is instrumental to industries and commercial activities at times located hundreds of kilometres away from the port. The tasks of coordinating these actors, providing and maintaining port infrastructure, regulating port activities, promoting the port, and in some cases operating commercial activities within (and outside) port boundaries fall under the responsibility of port managing companies, often referred to as port authorities.

Over the last decades, port managing companies have increasingly become port asset managers and cluster coordinators. Although governance models vary from port to port and even within the same country, powers and responsibilities may differ quite dramatically. Port managing companies have been tasked primarily to ensure the productivity of port assets and act as facilitators to foster ship-to-port productivity, but this implies managing

an increasingly complex array of stakeholders and acting as a mediator between them. As port competitiveness became more dependent on inland infrastructure, port managing companies were entrusted with the responsibility of mediating between the port actors and the authorities responsible for land infrastructure development, railway enterprises, trucking companies and other inland logistics actors. This was a function that challenged traditional port governance models, mostly centered around water infrastructure.

Several ports also function as land bases for ocean-related activities. The relationship between ports and the fishing industry has tended to concentrate towards specialized, often smaller ports. Some of these ports are integral parts of fisheries chains and in many cases, are controlled by large corporations. This extends to aquaculture, which often relies on specialized port bases, as does seaweed and algae production. Governance structures for these ports differ from multipurpose ports, as ocean activities are the primary commercial use of port infrastructure.

With the development of the offshore energy sectors, ports provided the land base for exploration, maintenance, supply provision and the connecting points of pipelines and other energy infrastructure. With the development of offshore wind power, some locations have also developed as critical hubs for the management of offshore wind parks through their construction, operations, and decommissioning. Because of their unique location, ports have also been instrumental in the exploitation of tidal and wave energy, among other renewables. Insufficient port infrastructure might represent a major constraint in the scaling of such activities.

It is because of the multifaceted and diverse nature of port activities that a one-size-fits-all approach to sustainability in the port sector appears unsatisfactory. Every set of actors, and with them each port managing company, will be faced with different challenges related to the specific activities that impact ocean systems through the port, whether they pertain to commercial vessels, fisheries, or renewables. As our concern for the preservation and sustainable management of ocean resources increases, port managing companies are likely to be asked to oversee, or at least contribute to, the coordination of the activities that will take place in the ocean or coastal areas neighbouring the port. This might include a stewardship role as well as the function of regulator, facilitator, and maritime cluster coordinator. Not all ports globally have suitable legal or governance frameworks to adequately attend to these roles. Furthermore, many ports might lack adequate resources to



execute these various roles. Regardless, these multiple demands are becoming defining issues for ports, considering the need to restructure port management to meet the challenges of climate change in the face of adaptation and resilience (see subsequent chapters).

In addition, ports can play a crucial role in facilitating the transition to the circular economy as they are strategic infrastructures for international trade that play a key role in goods traffic and exchanges between maritime and land-based environments.

Instrumental to these transitions is monitoring, which plays a key role in governing interactions to ensure sustainable usage of the ocean for food production — including preventing illegal, unreported and unregulated (IUU) fishing in cooperation with other relevant authorities, depending on national regulation.

PARTNERSHIPS OF RELEVANCE

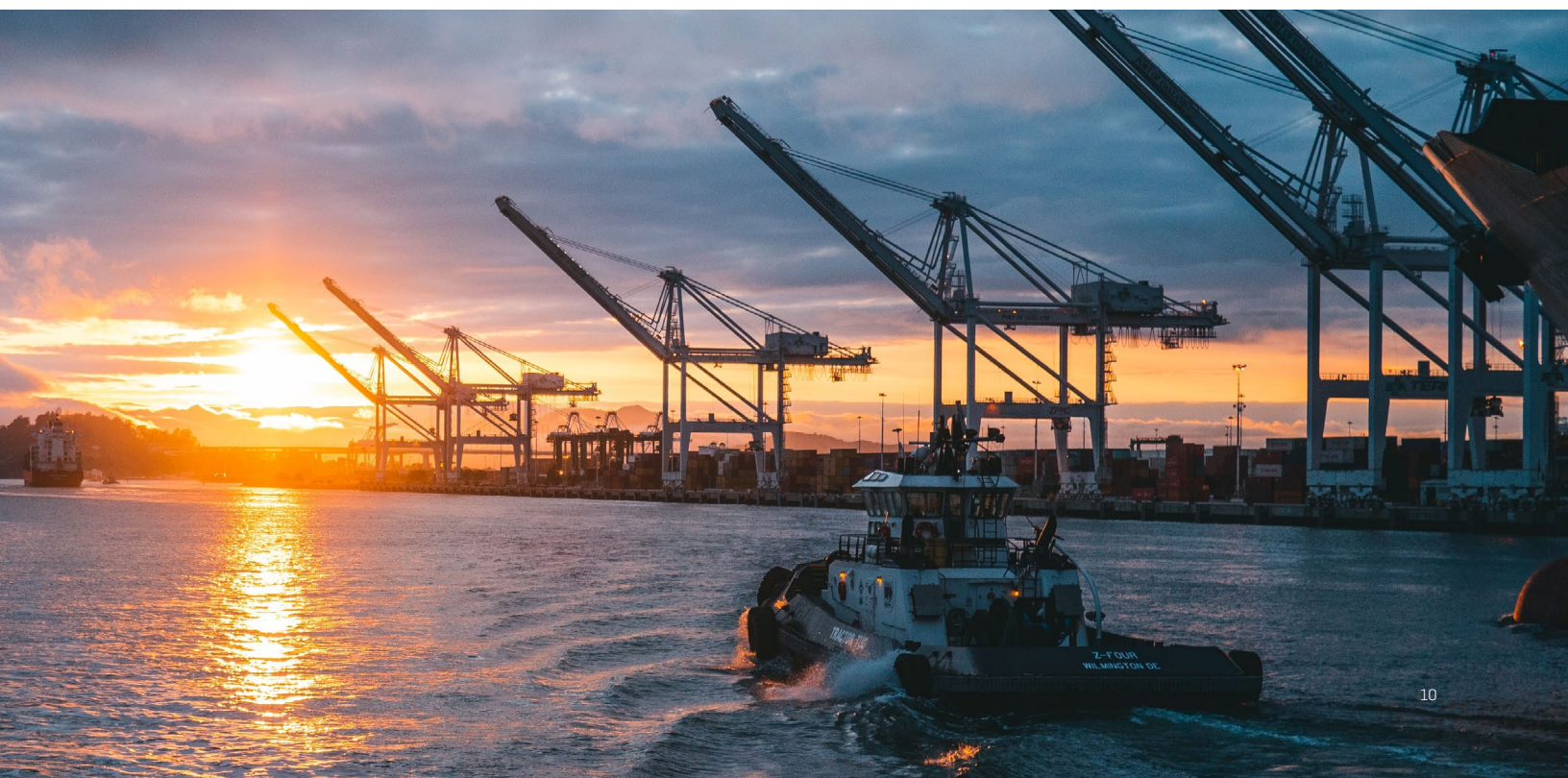
- [GreenVoyage2050](#) is a project partnership between the International Maritime Organization (IMO) and Norway aimed at expanding Government and port management capacities to undertake legal and policy reforms, develop National Action Plans, catalyse private sector partnerships, promote innovation, enable technology transfer and deliver pilot demonstration projects to facilitate technology uptake. Private sector participation is facilitated through the Global Industry Alliance to Support Low Carbon Shipping.
- The [LOOP-Ports project](#) aims to facilitate the transition to a more circular economy in the port sector by contributing to the transition of the European economy towards closed-loop systems. The project has created a circular economy network of ports, focusing on high-emitting materials, mainly metals, plastics, cement, and biomaterials.
- [Seafood Business for Ocean Stewardship](#) (SeaBOS) is a collaboration between scientists and seafood companies that seeks to develop more sustainable seafood production and improved ocean health. SeaBOS convenes taskforces on areas including addressing IUU fishing, endangered species and forced labour, working with Governments, reducing ocean plastics and climate resilience.

PRINCIPLE 1

ASSESS THE SHORT- AND LONG-TERM IMPACT OF THEIR ACTIVITIES ON OCEAN HEALTH AND INCORPORATE SUCH IMPACTS INTO THEIR STRATEGY AND POLICIES.

GUIDANCE

- Support multi-stakeholder dialogues, together with clients, partners and other stakeholders like cargo-owners, to foster a sustainability-driven culture.
- Ensure port operations are biosecure and prevent invasive species introduction to local waters.
- Build sustainable port environmental and social (E&S) management systems that provide:
 - (a) The framework for integrating synergies with various Principles (i.e., Principles 2, 3, 4 and 7);
 - (b) The necessary tools to facilitate port efforts in achieving gradual and higher E&S Maturity Levels;
 - (c) The integration of multiple port users in a collaborative effort to enhance sustainability.
- Adapt port environmental plans to reduce impacts on local sensitive environments and marine habitats.
- Assess the impact of the energy transition on interfacing stakeholders, such as shipping, and the port infrastructure requirements for the future.
- Submit to a voluntary audit scheme of impacts on the environment and the ocean, and review activities to assess potentially less impactful solutions to daily activities — which can also in turn increase port efficiency and lower costs while having a positive impact on the environment and the ocean.
- Lower aquatic impacts from vessels to protect marine fauna, for example, by setting acoustic threshold goals and offering lower port fees for quiet and more environmentally friendly vessels.
- Set Science Based Targets for Nature, based on an understanding of the port's impact across Planetary Boundaries, outlining a pathway to competitiveness and resilience by using science to define their role in restoring nature and monitor and report progress.
- Prevent, deter, and eliminate illegal, Unreported, Unregulated (IUU) fishing by preventing vessels engaged IUU fishing from using ports and landing their catches. The [Agreement on Port State Measures \(PMSA\)](#) is an internationally binding agreement in this area which, when ratified by governments, seeks to curb IUU fishing.



CASE STUDIES

- The Port of Vancouver has implemented the [EcoAction Program](#), whereby shipping companies can qualify for a reduction of their harbour dues fee as an incentive to take voluntary measures to reduce their environmental impact. Measures include utilizing renewable energy to reduce air emissions and propeller technologies that reduce underwater noise as well as gaining third-party environmental designations.
- Several [ports around the world now offer “cold ironing”](#), a process of providing shoreside electrical power to a ship at berth while its main and auxiliary engines are turned off. Research has shown that cold ironing can significantly reduce CO2 emissions and noise pollution and improve air quality.
- In the Jebel Ali Terminal in Dubai, DP World is piloting the BoxBay system (a high bay storage system) to reduce (by about 70 per cent) the land area needed to support terminal operations and increase yearly yard throughput per hectare. With this technology, the patented design and rack structure of BoxBay creates advantages with containers stored up to 11 stories high, delivering the capacity of a conventional terminal in a third of the surface area. It enables gains in handling speed, energy efficiency, safety and a reduction in operating costs.
- The Port of Cartagena follows up on operations to prevent incidents with a negative impact on the ocean, aligning its strategies and action plans with the standards of the IMO. Strategies and actions include water quality monitoring campaigns in the bay to identify joint preservation and mitigation actions as well as coordinated plans with local authorities toward an immediate reaction to emergencies that may occur in the port and other parts of the city.
- The [Port of Valencia](#) has a new pilot project aiming to supply water to the port terminal employees, which could save 1 million plastic bottles per year. Water dispensing machines will be installed on the docks at the base of each container crane to enable workers to easily refill their reusable bottles. The organizers of the initiative found that keeping the water at the right temperature was a key issue to address, as dock workers work in different locations. Until now, the docker was responsible for fetching the water. With this new project, water will be directly accessible to the workers of each crane. The initiative is part of the “No Plastic” project promoted by Ecoport Valencia, the Valencia Port Employment Centre and Aportem-Puerto Solidario Valencia, and which was set up two years ago. The project intends to change the paradigm in the use of plastic and replace it with recyclable materials and to raise awareness of the problems linked to the excessive use of materials derived from plastic.
- The [CLAIM project](#) (cleaning litter by developing and applying innovative methods in European seas) will power five new technologies to innovate the ways in which the ocean is cleaned. Data-modeling will produce maps of concentrations of macro and micro litter while ecosystem service approaches will identify areas where intervention has the greatest potential to secure impact on human well-being.

PRINCIPLE 2

CONSIDER SUSTAINABLE BUSINESS OPPORTUNITIES THAT PROMOTE OR CONTRIBUTE TO RESTORING, PROTECTING, OR MAINTAINING OCEAN HEALTH AND PRODUCTIVITY AND LIVELIHOODS DEPENDENT ON THE OCEAN.

GUIDANCE

- Explore potential benefits of building with nature.
- Manage port operations to prioritize and optimize productivity to make the best use of land, equipment, fuel, human resources, etc.
- Participate in collaborative forums, consortiums, joint industry projects or public-private partnerships to research and develop solutions to address shared marine environmental problems and solve complex multi-stakeholder challenges.
- Undertake habitat restoration projects, which improve ecological function and create sustainable tourism, marine goods, and services opportunities.
- Adapt practices to reduce impacts to the ocean in fishing ports (i.e., preventing fuel spills and effluent reduction).
- Take steps to support coastal biodiversity health and protect against flooding.
- Review publications from [ESPO EcoPorts](#) relating to ocean health.
- Draw on current news from [Green Port Magazine](#).
- Apply best-practice guidance relating to ocean health from [PIANC EnviCom](#) and [Working with Nature group](#).





CASE STUDIES

- The Port of San Diego published the Sea Level Rise Vulnerability Assessment and Coastal Resiliency Report, which outlined adaptation planning in 2019. Among the plans was the installation of 72 “Econcrete” tide pools to provide ecological protection, stabilize the shoreline and contribute to the regeneration of the local ecosystem. Econcrete consists of a low-carbon concrete mixture and bioenhancing additives. The tide pools contribute to reducing the ecological footprint of the port and protecting the shoreline against extreme weather while also being visible for visitors who can see sea life that will inhabit the new structures.
- DP World supports the Blue Marine Foundations’ (BLUE) Solent Oyster Restoration Project in the United Kingdom. Globally, an estimated 85 per cent of oyster beds and oyster reef habitats have been lost, making them among the most imperiled marine habitats in the world. BLUE is creating a model for restoration of this key habitat by relaying millions of oysters into the Solent.
- The Port of Cartagena Group created the Port Oasis Ecopark project, an initiative for the conservation of wild species, which seeks to recreate natural environments and promote knowledge of Colombian biodiversity among tourists arriving at the Cartagena Cruise Terminal through modern exhibits. This 10,000 square meter Oasis is located in the Manga Maritime Terminal, headquarters of the Regional Port Society of Cartagena, and houses more than 700 animals of 74 different species, some of which have been handed over by the environmental authorities for their recovery, protection and conservation. Among the objectives of this process is to consolidate the tourist facilities as an oasis where the local ecosystem is protected; to promote an approach to Colombian biodiversity among tourists and attract more visitors; to convert the terminal into an innovative embarkation site; and to promote a cultural exchange that increases the socioeconomic opportunities of the people of Cartagena as a sustainable tourist destination.
- The Port of Helsinki offers environmental discounts on vessel fees for Environmental Ship Index (ESI) points, noise level in downtown harbour and for environmental investments. The Port also offers cruise ships a discount on waste fees if they leave their wastewater in port reception facilities. Reviewing the results of these fees, the Port has found that the waste fee discount for cruise ships has been particularly effective. For example, in the last cruise season, close to 100 per cent of cruise passenger generated wastewater was sorted in waste reception facilities. Employees also have the possibility to participate through the port’s employee commuting policy. The port encourages its employees to use public transportation and bicycles by offering seasonal tickets for public transports and the possibility to buy a bicycle as an employee benefit.
- The first German guidelines for granting permits for underwater hull cleaning at the Bremen and Bremerhaven ports have been published as a result of the CLEAN project, with the aim of reducing pollutants into port waters thanks to proactive cleaning on abrasion-resistant, biocide-free coatings for the shipping business. These guidelines create a basis for the development and use of innovative methods which satisfy legal requirements, meaning that new cleaning techniques can be developed as part of proactive antifouling management. To date, there are no binding national or international regulations for granting a permit for underwater hull cleaning in ports.

PRINCIPLE 3

TAKE ACTION TO PREVENT POLLUTION AFFECTING THE OCEAN, REDUCE GREENHOUSE GAS EMISSIONS IN THEIR OPERATIONS TO PREVENT OCEAN WARMING AND ACIDIFICATION, AND WORK TOWARDS CIRCULAR ECONOMY.

GUIDANCE

Reduce greenhouse gas emissions:

- Develop port infrastructure to reduce negative external effects from shipping (i.e., providing onshore electrical power supply).
- Convert energy usage in the port to renewable energy (e.g., solar, wind).
- Form green shipping corridors to establish multinational partnerships to reduce carbon and particulate emissions.
- Accelerate the transition away from diesel-powered land-side vehicles and machinery (i.e., by purchasing zero- or low-emission drayage trucks and gantry cranes).
- Refer to the [website of Navigating a Changing Climate](#) — a global climate action group for the waterborne transport infrastructure sector — for publications that can serve as relevant tools.
- Ensure that regular monitoring takes place to assess impacts on local environments and communities as part of a comprehensive Environmental and Social Management System (ESMS).
- Understand how operations and facilities may need to adapt to the impacts of climate change.
- Track and report (greenhouse gas) GHG emissions over time using a standard methodology (i.e., [Greenhouse Gas Protocol](#)), implement climate change mitigation measures in own operations and provide goods/services that help users to reduce emissions.
- Collaborate both across the maritime value chain and across sectors to enable the transition to net-zero carbon fuels through market incentives, such as carbon pricing, and development of supply-chains for low-zero carbon fuels.
- Upgrade ports so they can be used to support the build-out of ocean-based renewable energy.
- Take a whole-life approach to the management of carbon, that spans the control-influence spectrum, covering capital, operational and user emissions across the whole lifecycle.
- Consider operational and technical measures to improve energy efficiency of operations.
- Improve ship-to-shore communications to reduce waiting time and apply just-in-time arrival, therefore reducing fuel consumption and associated air emissions and GHGs.
- Manage sediment to develop habitats and sequester blue carbon.
- Assist in the adaptation of port infrastructure to support the build-out of Floating Offshore Wind where possible.
- A relevant resource is the [Ship-Port Interface Guide: Practical Measures to Reduce GHG Emissions](#) developed by the Global Industry Alliance for the GreenVoyage2050 project of the IMO.

Transitioning towards a circular economy:

- Understand waste generated due to business practices and adopt waste hierarchies.
- Explore synergies between industries operating in or near the port and opportunities to be involved in new production and consumption models, such as industrial symbiosis projects, which focus on the exchange of waste materials, heat, gasses, and slurry between production facilities.

Pollution affecting the Ocean:

- Contribute to the protection of marine and coastal ecosystems through waste and wastewater management, land remediation, habitat protection and restoration.
- Join multi-stakeholder, collaborative initiatives to prevent marine plastic pollution as well as innovate and implement methods to reduce plastic in the ocean.
- Establish routines for crisis management and incident response and actively mitigate accidents that may damage or pollute ocean ecosystems.
- Ensure availability of port reception facilities for ship-generated waste and cargo residues towards the circular economy process.

CASE STUDIES

- In 2022, the [Port of Los Angeles](#), [Port of Shanghai](#) and [C40 Cities](#) announced a partnership to create the first transpacific green corridor to decarbonize goods movement between the largest ports in the United States and China. The transpacific corridor is the busiest container shipping line globally — moving 21 per cent of the world's total unit containers, according to UNCTAD in 2021. Among the key decarbonization goals is to reduce supply-chain emissions from port operations and improve air quality in the ports and adjacent communities.
- The [Port of Seattle](#) has joined the [International Alliance to Combat Ocean Acidification \(OA Alliance\)](#) and created an Ocean Acidification Action Plan to serve as a framework to highlight the port's current initiatives to combat ocean acidification and recommend next steps. Actions in the plan include reducing GHG emissions by 50 per cent compared to the baseline by 2030 and becoming carbon neutral by 2050 as well as habitat, stormwater, and clean air and energy initiatives.
- A number of ports have endorsed the [COP 26 Climate Change and Sediment Management Pledge](#), recognizing that “understanding and working with these critical, interrelated natural processes will enable sediment managers to identify and deliver solutions that benefit not only climate and nature, but also society and economy.”
- Several ports have set science-based targets through the [Science Based Targets initiative](#), including the Ports of Auckland Limited, Adani Ports and Special Economic Zone Limited, Geelong Port and the Port of Rotterdam.
- To strengthen the overall response to climate change threats, the Port of Cartagena Group applies different measures to prevent, mitigate and control the potential environmental impacts of its operations as follows: The Port has a comprehensive environmental management policy with objectives aimed at efficient energy and water resources management; preventing the occurrence of accidents and operational incidents that may affect the environment; developing the organization's zero-waste program and the 4R optimal recycling management program; monitoring the quality of water and air components to develop sustainable management in the operations of each terminal; developing social management programs to improve the quality of life of suppliers, workers and the community; and disclosing to stakeholders the sustainable management activities carried out by the Sociedad Portuaria Regional de Cartagena (SPRC) and the Terminal de Contenedores de Cartagena (CONTECAR).
- In addition, the GPC carries out an annual voluntary measurement of the carbon footprint of CONTECAR and SPRC with the preparation of an annual Environmental Responsibility Report focused mainly on the Carbon Footprint of each of the port terminals. Such study includes three scopes or approaches where the different emission sources were classified: Scope 1: direct emissions from the terminals (fossil fuel consumption), Scope 2: indirect emissions from the terminals (electricity consumption) and Scope 3: emissions from terminal users and other sources (including ship fuels, trucks, tugboats and emissions associated with air transport of terminal personnel) using the reference methodology of the American Association of Port Authorities.



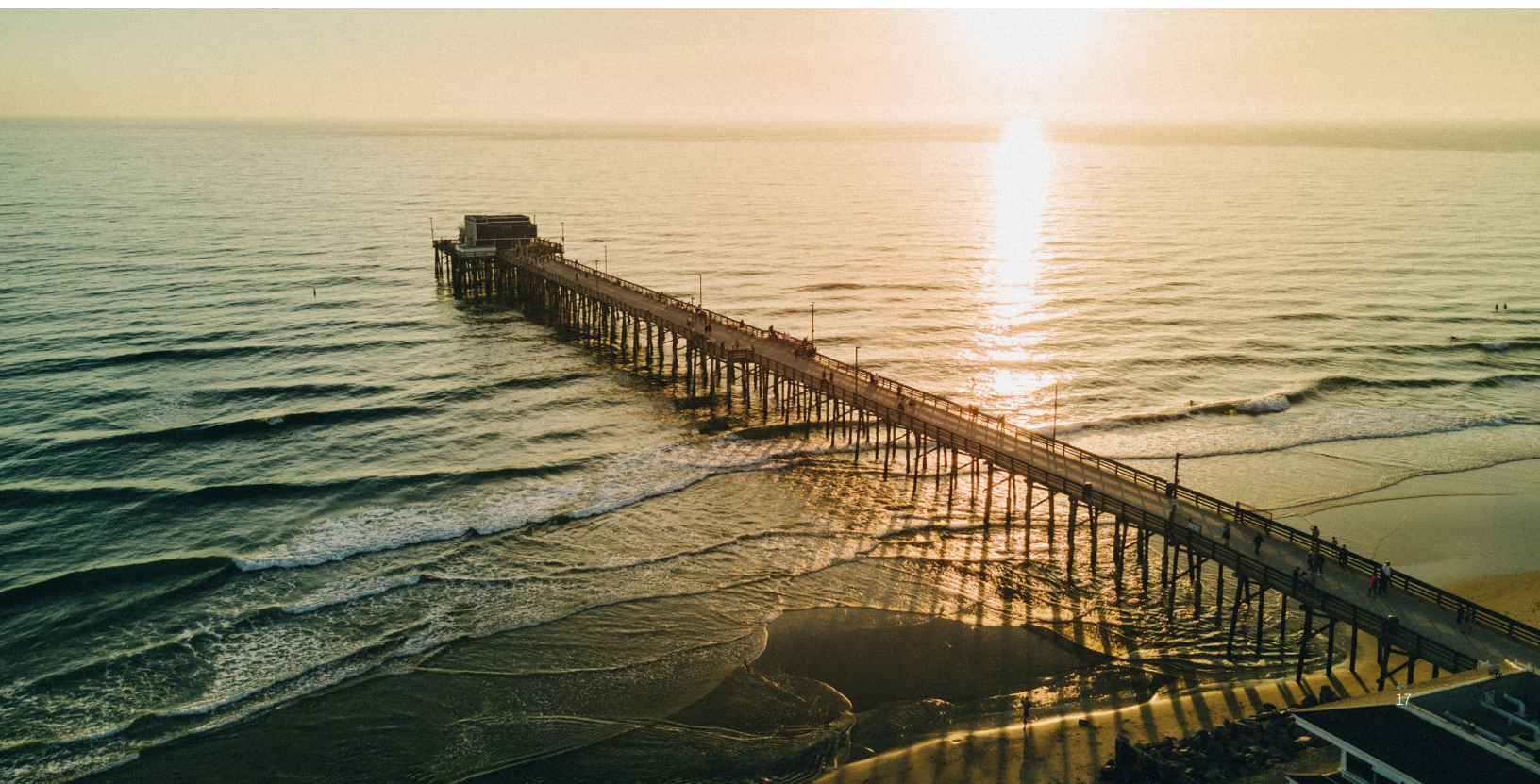
- The Port of Rotterdam has developed a digital platform to calculate and monitor transport-related emissions (ranging from carbon dioxide to nitrogen) in the port. Data, including from Automatic Identification System (AIS), a system that registers all vessel movements, is combined with emission factor calculation models, enabling a precise calculation of transport sector emissions. These analyses enable the port and its partners to use hard data to anticipate concrete improvement opportunities, and we are better able to assess the impact of measures in advance.
- The [Port of Kiel](#) aims to reduce its carbon dioxide emissions to zero by 2030. The path to climate neutrality is described in a three-step plan that concretizes the port's BLUE PORT concept initiated in 2018, covering 60 per cent of the energy requirements of ships calling at Kiel with green electricity in 2022. In 2025, this figure is to rise to 80 to 90 per cent before climate neutrality is achieved for all Port of Kiel activities in 2030 through the interplay of a wide range of measures. Emissions of nitrogen oxides and particles will also be further reduced thanks to the measures introduced. The energy demand at the terminals has been reduced by switching to economical LED technology as well as increasing energy efficiency while photovoltaic systems supply approximately 290,000 kilowatt hours of solar energy every year. To make processes at the cargo terminals more efficient, the port plans to optimize operational processes on the basis of a 5G campus network to support climate-neutral growth in port-handling using innovative IT technology. More than 6,200 tonnes of CO₂ have already been saved at the Port of Kiel in 2020.
- The [Port of Felixstowe](#) has placed orders for 48 battery-powered terminal tractors and 17 zero-emission remote-controlled Electric Rubber-Tyred Gantry cranes (ReARTGs). This technology will save 6,662 tonnes of CO₂ and 59.38 tonnes of NO_x emissions every year at the port. The port has a target of a further 20 per cent reduction over the next five years, after it has already reduced its carbon footprint by 30 per cent since 2015.
- Launched in autumn 2015, [Vasco2](#) is a research programme led by the Port of Marseille Fos and 12 partners focusing on recovering the CO₂ emitted by industry. Their aim is to contribute to the energy transition through innovation by testing a novel solution for biomass production based on the biological recycling of industrial CO₂. The Vasco 2 program was built on the principle of "allowing nature to take its course" through tests in seawater and then in freshwater, no selection of algae and no pre-treatment of the water or fumes. At the steering committee meeting in April 2019, the consortium partners agreed to move to the industrial stage (i.e., to 3,000 m² lagoons).

PRINCIPLE 4

PLAN AND MANAGE THEIR USE OF AND IMPACT ON MARINE RESOURCES AND SPACE IN A MANNER THAT ENSURES LONG-TERM SUSTAINABILITY AND TAKE PRECAUTIONARY MEASURES WHERE THEIR ACTIVITIES MAY IMPACT VULNERABLE MARINE AND COASTAL AREAS AND THE COMMUNITIES THAT ARE DEPENDENT UPON THEM.

GUIDANCE

- Identify and assess short- and long-term impacts at the local, regional and global level through an Environmental and Social Impact Assessment (ESIA) in consultation with relevant experts and local stakeholders to identify the material impacts of business activities.
- Ensure an environmental and social management plan is developed and agreed on with internal and external stakeholders to address areas of concern or impacts in a manner commensurate with the sensitivity of the local ecosystem.
- Encourage the implementation of speed limits to protect marine life (to prevent noise, collision, etc.)
- Effectively engage in the local marine spatial planning (MSP) processes.
- Implement responsible dredging activities and other port maintenance activities that do not create coastal effects outside of the port area or create noise pollution that affects vulnerable species.
- Consider how port infrastructure can protect the coastline, for example by adapting quayside infrastructure for resiliency, where relevant.
- Adopt a deliberate, long-term strategy to protect and restore coastal ecosystems, take account of the impact on biodiversity and counter the significant artificialization that can be caused by introducing new infrastructure to the natural environments.
- Work in cooperation with municipalities to mitigate pollution from urban runoff, keeping pollutants out of coastal waters.





CASE STUDIES

- DP World Posorja (DPWP) began a [Mangrove Plantation Program](#) in Guayas province, Guayaquil canton, Puna Island, near the Zapote community. The programme will result in the reforestation of 105 hectares and is carried out within the “Our World, Our Future” strategy in cooperation with the Calisur Foundation. The first 150,000 red mangroves were delivered to the Ecuadorian Minister of Environment sufficient for the first 65 hectares of reforestation. According to DP World, the new mangrove area will provide livelihoods to about 6,000 people who depend on fishing while protecting local habitats and reducing CO2 emissions.
- [Copenhagen Malmö Port and By & Havn](#) have reached an agreement on a new container terminal at Ydre Nordhavn. The construction of the new terminal takes account of the environment and environmental approvals have been granted for the project. Due to its proximity to Copenhagen, delivery of goods will be possible with minimal emissions and congestion on Danish roads. In addition, the construction of the Nordhavn tunnel under Svanemølle Bay is ongoing and will allow direct access from the container terminal to the motorways around the capital (expected by 2027). The new terminal will be bigger than the existing terminal at Levantkaj with around 165,000 m² compared to 140,000 m² currently. In addition, two new container cranes will be installed. In total, the length of the quay will be 550 m, and water depth will go down to 12.5 m.
- [COREALIS](#) proposes a strategic, innovative framework — supported by disruptive technologies, including the Internet of Things (IoT), data analytics, next-generation traffic management and emerging 5G networks — for cargo ports to handle upcoming and future capacity, traffic, efficiency and environmental challenges. This enables ports to minimize their environmental footprint to the city, decrease disturbance of local population through a significant reduction in the congestion around the port, boost economic development and business innovation and promote local start-ups in disruptive technologies. The Port Network Authority of the Northern Tyrrhenian Sea (Port of Livorno) has orchestrated an implementation plan around 5G in collaboration with the Italian Interuniversity Consortium for Telecommunication (CNIT) and Ericsson Research. As 5G provides high flexibility, high bandwidth and low latency, it is considered a key enabling technology for the optimization of freight terminal operations, which is at the focus of the COREALIS project. A 5G-based control module for managing general cargo performs a real-time control of loading/unloading operations, collects data via yard vehicles and dock sensors (e.g., LIDAR, WDR cameras and tablets) and takes operating decisions based on real-time analytical processing. Introducing 5G, augmented reality AR, and AI-based Use Cases in the port of Livorno leads to operational, economic, social, and environmental benefits.

2.2. CLIMATE RESILIENCE AND PORTS

CHALLENGES AND OPPORTUNITIES OF THE SECTOR/RELEVANCE

The topic of climate resilience for ports is not new, although the importance of adaptation and resilience in the last decades has increased as our understanding of the exposure of ports to climate and other risks have expanded and as natural disasters have become more frequent. Given the critical strategic nature of port assets and the central role of port management companies in coordinating activities in their clusters, adaptation and resilience are of paramount importance not only for port activities but also for communities and the economies of the countries and regions served by the port. Equipping ports with adequate infrastructure to reduce the negative impact of climate change is only part of how ports should prepare to better manage disasters in the ports and in the port regions. Coordinating and managing port resilience is likely to become an additional responsibility for ports in the years to come.

Further, as climate hazards increase, port resilience will become increasingly central to business continuity as well as access to new finance.

A definition of port resilience includes ports' ability to:

- Withstand and adapt to changing conditions.
- Recover quickly from shocks and stresses, thus reducing disruption.
- Provide essential services now and in the future.

In order to clearly understand the importance of resilience and adaptation, understanding port risk under Climate Variability and Change (CV&C) is important. Risk of impacts is a function of a number of factors:

- Climatic hazards — changing climatic factors, dependent on climate scenario/emissions.
- Exposure of port infrastructure/operations to hazards.
- Vulnerability — depends on the capacity to respond to factors that make ports prone to damages/losses from hazards, e.g., availability of technologies and materials for port defences, elevation, human and financial resources; and policy, legislation and management.

It is important to bear in mind when assessing port risk that the hazards are also growing. The following are the most common expected changes in the hazards impacting port risk:

- Mean sea level rise (SLR), which can result in permanent inundation risk, making ports inoperable without port elevation/coastal protection; changes in port and key transit access (e.g., the Kiel Canal); and insurance issues.
- Increased extreme sea levels (ESLs), which can cause increasing frequency/depth of facility flooding and damages; losses due to operational changes in wave energy/direction delays; breakwater instability scouring and overtopping from storm waves; increasing protection costs; wave penetration affecting operations; changes in hydromorphological processes and sediment regimes; impact on activities such as dredging; and insurance issues. All global ports are affected by ESLs, with effects worsening as the Specific Warming Level (SWL) increases. Even under SWL of 1.5°C, the return period of the baseline 1-in-100 years ESL will decrease to every 1 to 10 years in many South American, African, Gulf Stream, East Asian and Pacific ports. Under a SWL of 3°C, many global ports will experience the baseline 1-in-100 years ESL several times per year¹.
- Precipitation with changes in seasonal distribution, mean amounts and/or in the intensity; type and frequency of extremes causing pluvial/fluvial or groundwater flooding, which can result in infrastructure flooding and damages; poor maneuverability of vessels or operation of locks from changes in water level and speed; and poor visibility from increasing fogs. More frequent low flow levels in rivers can impact on onward transport options as well as on saline intrusion.
- Temperature changes will result in higher means and extreme heat (EH); heat waves; changes in warm/cool days; reduced arctic snow cover and ice; and permafrost degradation. This will cause deterioration of paved areas, inoperable cranes, navigational equipment/cargo damages, higher energy consumption for cooling, and health/safety issues for personnel/passengers. While reduced arctic snow cover can potentially have some benefits — such as opening new arctic shipping

¹ United Nations Conference on Trade and Development, Regina Asariotis, "Climate change impacts on seaports: A growing threat to sustainable trade and development", article No. 75, UNCTAD Transport and Trade Facilitation Newsletter, No. 90, 4 June 2021. <https://unctad.org/news/climate-change-impacts-seaports-growing-threat-sustainable-trade-and-development>

routes, longer operations seasons, lower fuel costs, and reductions in snow/ice removal costs — arctic seaports will face increasing sea storm hazards. In particular, permafrost degradation will likely cause ground subsidence, slope instability and drainage issues, affecting port structural integrity. Further, changes in water temperature will have implications for vegetation management, species migration, survivability of invasive species, and certain water chemistry characteristics (e.g., acidity). *All global ports will be affected by EH, with the effects also worsening as the SWL increases. Even under an SWL of 1.5°C, the return period of the baseline (1976–2005) 1-in-100 years EH event will decrease (down to every one to five years) in most tropical/subtropical settings. Under an SWL of 3°C, most global ports (except some ports in higher latitudes) will experience the baseline 1-in-100 years event at least every two years.*

- Wind and waves — particularly with changes in frequency and intensity of extreme events. These will cause damage to terminals and navigation equipment, problems for vessel navigation and port berthing as well as difficult crane and other equipment operations above certain wind speeds.

The impacts of these hazards will have implications for the health and safety of workers on land and at sea, energy needs and costs, energy efficiency, uptake of renewables, and decarbonization. This implies that taking action to mitigate port risks will also have co-benefits in terms of energy efficiency, use of renewables, and decarbonization. These co-benefits emerge both in terms of preparedness, taking into consideration different approaches that address multiple objectives (social, environmental, etc.) when trying to prevent disaster, but also in terms of post-disaster reconstruction to build back better in ways that promote both climate adaptation and mitigation.

In addition to protecting business continuity, resilience and adaptation can encompass how ports need to change in response to key sectoral drivers, including decarbonization, technology and climate change, enhanced pressures to protect the environment, and managing social relations with their workers. Many of these drivers can be instrumental in improving port activities and energy security.

Several efforts have been made to identify what ports can do to enhance resilience and adaptation, but it is also important to highlight the limitations that ports have from a jurisdictional and legal point of view. Financial limitations are also often a factor. While it is impossible to draw clear boundaries on how far out into the ocean system ports can provide protection for their regions, it can be argued that port efforts towards resilience and adaptation need to move to the full extent of port managing companies' control and influence. The [Port Resilience Framework for Action](#) identifies a broad range of stakeholders across three nested dimensions who need to take action to support port resilience-building.

Furthermore, port managing companies and other actors can provide incentives (such as discounts, etc.) aimed at creating the right conditions and stimulating action among various actors that can favour resilience and adaptation.

Ports' influence depends on the governance model adopted in ports and the different functions that port managing companies are entrusted with (e.g., regulators, operators, or landlords and the new role of community-builders). Port managing companies can develop instruments to implement broader resilience and adaptation policies, as they already are impacting the transition of the shipping sector towards more environmentally friendly technologies. Efforts towards tackling resilience challenges in ports can be observed globally, although each port is approaching these challenges differently as a result of, for example, their sizes and the activities taking place in the port.

Ports can also play a critical role in preparedness, such as by setting up adequate conditions to better respond to disasters. The World Food Programme and other humanitarian organizations have included ports in their preparedness strategies.

Although seaports are critical facilitators of global trade and development and vital for access to the blue economy, they are at considerable risk of climate change impacts, which are growing while transport infrastructure investments fell in 2020. There are significant economic costs associated with inaction, which acts as a threat to sustainable development prospects of the most vulnerable, including Small Island Developing States (SIDS), where ports are lifelines for trade, tourism, food and energy security, and Disaster Risk Reduction (DRR). Failure to adapt is not an option and time is of the essence if ports are to continue playing an instrumental role in economic development worldwide.

PARTNERSHIPS OF RELEVANCE

- The Food and Agriculture Organization of the United Nations (FAO) is promoting the Blue Ports Initiative, focusing on identifying and exchanging best practices. These efforts started in 2019 and were aimed at tackling the need to promote collaboration to reinforce the role fishing ports have in their ecosystem and in local food chains. FAO is working on guidance for ports to become blue, with the objective of implementing a capacity-building programme in 2022. In particular, this guidance aims at promoting the importance of collaboration between the public and private sectors.
- The United Nations Conference on Trade and Development (UNCTAD), in collaboration with a range of partners, has been working on implications of climate change for maritime transport since 2008, with increasing focus on climate change adaptation and resilience-building for seaports and other key coastal transport infrastructure, including in SIDS.
- Navigating a Changing Climate (NavClimate) is a multi-stakeholder coalition of 7 international associations with interests in waterborne transport infrastructure that aims to provide practical support to the sector as it responds to the changing climate. Set up in 2015 as a Marrakech Partnership Global Climate Action (MPGCA) initiative, NavClimate also represents ports and waterborne transport infrastructure in the United Nations Framework Convention on Climate Change (UNFCCC) process for non-State actors.
- EcoPorts is the main environmental initiative of the European port sector. It was initiated by several proactive ports in 1997 and has been fully integrated into the European Sea Ports Organisation (ESPO) since 2011. The overarching principle of EcoPorts is to raise awareness of environmental protection through cooperation and sharing of knowledge between ports and improve environmental management.
- Resilience4Ports: The Resilience 4 Ports Innovation Lab aims to mobilize a diverse set of stakeholders and a community of practitioners to collectively enhance the resilience of ports, surrounding communities, coastal environments and connected supply chains to the shocks and stresses of an uncertain future. The lab is convened by Resilience Rising in alignment with the Sharm-El-Sheikh Adaptation Agenda.

GUIDANCE

- Accelerate action to ensure that by 2030, critical transport infrastructure is climate resilient to 2050 (c.f. MPGCA Milestones for 'Transport' and 'Resiliency') — this will be key in achieving progress on many Sustainable Development Goals (SDGs), including SDGs 1, 5, 9, 13 and 14, on port specific goals and on the [maritime resilience breakthrough targets](#).
- High-quality risk and vulnerability assessments, based on the best available science/data needed to improve understanding of impacts on ports, guide effective adaptation responses and prioritization of resources.
- Actors within the port ecosystem might not understand the impact of climate change and variability on their operations, so it is critical to create greater awareness.
- Ports should adopt a whole system approach to enhance resilience in ports.
- Work with nature and communities to enhance port functionalities.
- Respect human rights and encourage port users to do the same, exercising influence/leverage when possible.
- Enhance and regenerate the environment and add social values to manage future threats and build social capital.
- Best practices and recommendations should be adapted to the specific port context because they are not always transferable.
- Any approach to resilience needs to consider port diversity and diversity of legal jurisdiction.
- It is desirable that climate resilience approaches are developed that are suitable to private ports.
- Regulation should be developed with attention to longer-term implications as the impacts of climate change and climate variability might be felt over longer periods of time.
- Recommendations to work with nature-based solutions should account for space availability.
- Improve data collection/availability.

- Plan early to account for long construction time and lifespan of assets.
- Adopt a systems approach; and avoid maladaptation/over-engineering.
- Mainstream climate change considerations into all aspects of existing and new port infrastructure planning, design, and operation.
- Support prioritization and funding for technical studies to inform evidence-based priorities, effective policies, plans and action.
- Increase capacity-building (human resources at local levels) and better access to affordable climate finance.
- Ecosystem approaches to adaptation are important elements in any future strategy.
- Successful adaptation strategies need to be underpinned by strong legal, regulatory and policy frameworks (UNCTAD 2020) as well as standards (e.g., International Organization for Standardization (ISO- 14090, ISO-14091 guidance (e.g., PIANC – 2020, PIANC –2022 and EC Technical guidance on the climate proofing of infrastructure in the period 2021-2027 (OJ C 373, 16.9.2021, p. 1). and methodological tools (e.g., the United Nations Conference on Trade and Development (UNCTAD).
- Integrate relevant considerations into National Adaptation Plans (NAPs) and Nationally Determined Contributions (NDCs) as well as into development, DRR and COVID-recovery policies and planning.
- Major scaling up of investment and capacity-building for developing countries will be critical to 'build back better'. The Organisation for Economic Co-operation and Development (OECD) (2017) estimated that US\$ 6.9 trillion in infrastructure investment will be needed annually to meet the SDGs by 2030.
- For fishing ports, the FAO Guidance to Become a Blue Port can be used to identify a sustainable development roadmap based on the blue economy, with a positive impact on the wellbeing of local and regional communities, considering, among other aspects, infrastructure and strategies to support small scale fishing, food safety, traceability and regulations.

CASE STUDIES

- The Valencia Port Authority (APV) participates in the [ECCLIPSE project](#) (Assessment of Climate Change in Ports of Southwest Europe, co-financed by the Interreg SUDOE programme). Under the initiative, the APV convenes a working group to collect information, test modeling tools on climate and the physical marine environment, discuss and propose strategies for adaptation and minimization and plan actions to raise awareness. Further, as part of the project, the APV will establish a permanent climate observatory. The ports of Aveiro and Bordeaux also participate in the project, and the knowledge acquired is designed to be transferable to other ports.²



² World Ports Sustainability Program, "Port of Valencia – Increasing resilience to climate change", 2019. Available at <https://sustainableworldports.org/project/port-of-valencia-increasing-resilience-to-climate-change/>.

2.3. JUST ENERGY TRANSITION

CHALLENGES AND OPPORTUNITIES OF THE SECTOR

The 'Just Energy Transition' is a cross-sectional theme in this guidance because it permeates all nine of the Sustainable Ocean Principles and is relevant for all actors. According to the International Labour Convention, a 'just transition' means greening the economy in a way that is as fair and inclusive as possible to everyone concerned, creating decent work opportunities and leaving no one behind. The European Bank for Reconstruction and Development (EBRD) states that "a just transition seeks to ensure that the substantial benefits of a green economy transition are shared widely, while also supporting those who stand to lose economically — be they countries, regions, industries, communities, workers or consumers". Moreover, the [Paris Agreement](#) highlights "the imperatives of a just transition of the workforce and the creation of decent work and quality jobs in accordance with nationally defined development priorities".

Therefore, the adjective "just" refers to the need to include the social dimension in all processes of climate action by identifying and mitigating the potential human rights and social risks that could be caused by the energy transition. This approach encompasses both public policies and business actions to deal with:

- The transition 'out' of polluting industries such as fossil fuels and the implications on jobs and livelihoods such as the fate of coal mining communities, how to address commodity dependence, the need to retrain and upskill, etc.
- The transition 'in' to new environmentally and socially sustainable industries such as renewable energy, including offshore wind, tidal stream, tidal range, and wave energy technologies, bringing opportunities and benefits to governments, the private sector (including investors, and local communities).

Ports are key nodes between cities and international commerce, and their operations include a whole community of workers, logistics networks and the local communities they are embedded into. This diversity of actors offers the opportunity for ports to respect human,

labour, and indigenous peoples' rights (see Principle 7) as they move forward with the energy transition. Two concrete ways are:

1. City-port relationship: accounting for the impact of port development and expansion on local communities, and the socio-spatial distribution of benefits from the related commercial activity.
2. Workers: accounting for the welfare and well-being of workers including dockworkers, seafarers and fishers.

Therefore, the main and underlying guidance question for ports is:

What actions can the port take to ensure its transition actions — including daily operations and its growth strategy — align with local government goals and local communities needs and interests?

Further guiding questions relate specifically to:

- Labour restructuring policies: How do existing or new policies or procedures affect local communities, the workers involved and their families? Is there a risk of job losses incurring a negative impact for the local economy?
- What kind of education or skills development programmes could enable the participation of the local workforce? What targeted measures need to be established to support the participation of women and other underrepresented groups? Climate change: How are local communities affected by sea level rise, and what are some areas of opportunity where the port authority can have a positive impact?
- Participation: What mechanisms (or lack thereof) are in place to include communities' concerns on the assessment of port-related activities and plans? How can the port authorities (in partnership with governments) allow space to hear the voices of all relevant stakeholders in ports' development or expansion plans?
- Partnerships: What can the local government tell us about the context where the port operates? What are other actors — private companies, universities, non-governmental organizations (NGOs), foundations, community leaders, cooperatives, fishermen associations, etc. — that can be key partners to reduce the risk of local conflict and raise the probability of success of the port project?

REPORTING REGIMES

PARTNERSHIPS OF RELEVANCE

[Maritime Just Transition Task Force and its Global Industry Peer Learning Group](#) - the Task Force' is an unprecedented initiative, set up during COP 26 in Glasgow, by the International Chamber of Shipping (ICS), the International Transport Workers' Federation (ITF), the United Nations Global Compact, the International Labour Organization (ILO) and the International Maritime Organization (IMO), to ensure that shipping's response to the climate emergency puts seafarers at the heart of the solution, supported by the globally established Just Transition guidelines of the International Labour Organization. The Peer Learning Group consists of Industry, seafarers' unions and academia and provides a platform to share best practice and learnings on Maritime Just Transition

GUIDANCE

- Create a continuous dialogue and a strong relationship with the local communities — especially cities — to develop/ implement the cooperation and create common energy transition strategies.
- Involve different stakeholders in the decision-making process.
- Commit to social dialogue and disclose the categories of stakeholders engaged with.
- Provide targeted measures to support the inclusion of women and other diverse groups who face compounded inequalities and discrimination.
- Undertake skills development and training programmes to support local workforce participation.
- Commit to reskilling and upskilling employees.
- Skills forecasting, planning and implementation should ensure equal access to employment opportunities, and be designed appropriately to include young people, women and vulnerable groups.
- Assess and disclose risks of employment dislocation where relevant; take appropriate action to create and provide or support access to green and decent jobs.
- Identify impacts of energy transition on workers and need for social protection, where relevant.

CASE STUDIES

- In 2019, the Port of Rotterdam signed the [Leer Werk Akkoord](#) (Learning and Working Accord) with several educational institutions and companies based in the port. The agreements are aimed at creating a labour market with flexibly trained personnel. This means, among other things, career start guarantees on port jobs in process technology, maintenance, and logistics. In addition, 100 apprenticeships will be created for people on welfare in Rotterdam. And most importantly, an inspiring and innovative learning environment will be set up in which current and future port professionals can optimally prepare for careers in socially sustainable industries.
- During the development of the port's [Maritime Climate and Air Action Plan \(MCAAP\)](#), community feedback and ongoing consultations helped inform the content of the final MCAAP, including changes to actions that now better reflect community priorities. Updates were made to the MCAAP to acknowledge alignment between the plan and priorities in the newly developed Duwamish Valley Clean Air Program Action Plan. Actions were also added to reflect commitments to youth engagement and prioritizing local and women and minority-owned business enterprises in implementation. In response to requests for more accountability, the ports added commitments to regular updates and engagement on clean air strategy implementation and developed a common accountability framework to more clearly report on progress.

2.4. GOVERNANCE AND ENGAGEMENT

CHALLENGES AND OPPORTUNITIES OF THE SECTOR/RELEVANCE

Ocean governance is becoming increasingly complex as the sustainable management of marine resources often raises important geopolitical, social, environmental, and economic issues. The global nature of climate change is also revealing challenges associated with the governance of the ocean. While international organizations are often responsible for regulating transnational issues, many issues are handled differently from country to country and jurisdiction to jurisdiction. For this reason, countries, commercial enterprises, and representatives of civil society must often deal with different approaches, legal frameworks and enforcement practices, which are particularly significant for issues of a transboundary nature.

Ports have been an integral part of the international governance of the ocean as part of the Port State [Control](#) regimes and as the enforcement and regulatory bases for a large number of maritime and land-related issues, such as vessel seaworthiness, the enforcement of international and national regulation, enforcement of fishing quotas and standards, monitoring crew rights and developing, as well as enforcing, environmental regulation for ports and coastal areas.

As ocean activities, such as offshore energy, fisheries, and renewables, grew in importance alongside traditional loading and unloading activities at ports, the functions, responsibilities, and coordination roles for ports have also continued growing, challenging traditional governance approaches to port management.

Ports have become critical components of maritime production processes. However, as the legal and operational structures of port managing companies have evolved to allow effective governance of maritime spaces, ocean activities, and resources, it is often unclear whether port managing companies see this function as an integral part of their mandate. Often, though, port managing companies are best suited among the array of stakeholders and interested parties to act as coordinator — or even as regulator — in the sustainable management of marine resources because of their integrative function in the economic and production processes or clusters and in many cases, the public-private nature of their mandate.

REPORTING REGIMES

The [Port Environmental Review System](#) (PERS) doesn't only incorporate the main general requirements of recognized environmental management standards (e.g., ISO 14001) but also takes into account the specificities of ports. PERS builds upon the policy recommendations of ESPO and gives ports clear objectives to aim for. Its implementation is independently reviewed by LRQA Nederland BV.

PARTNERSHIPS OF RELEVANCE

- The International Association of Ports and Harbors (IAPH)'s World Ports Sustainability Program (WPSP)
- The World Association for Waterborne Transport Infrastructure's (PIANC) [Sustainable Ports – A Guide for Port Authorities](#).
- EcoPorts is the main environmental initiative of the European port sector. It was initiated by a number of proactive ports in 1997 and has been fully integrated into the ESPO since 2011.
- [ESPO](#) acts as contact organization for member ports in Europe.
- The neutral, independent and non-profit ECO Sustainable Logistics Chain Foundation ([ECOSLC](#)) acts as contact organization for ports outside Europe and for port terminals worldwide.
- [Green Port Award System](#) (GPAS) programme is a green evaluation system for ports in the Asia-Pacific Economic Cooperation (APEC) region developed by the APEC Port Services Network (APSN). It represents an integral part of APSN's ongoing efforts to promote the green growth of the APEC port industry.

PRINCIPLE 5

ENGAGE RESPONSIBLY WITH RELEVANT REGULATORY OR ENFORCEMENT BODIES ON OCEAN-RELATED LAWS, REGULATIONS, AND OTHER FRAMEWORKS.

GUIDANCE

- Individually and collectively encourage standards and actions that go beyond compliance, such as ambitious GHG targets aligned with the [Science-based Targets Initiative](#) and the 1.5 C temperature goal of the Paris Agreement.
- Support the development of policy and regulation that drives innovation and encourages and rewards leadership and first movers.
- Encourage national Governments to ratify the Agreement on Port State Measures (PSMA).
- Work with relevant organizations and unions to enhance practices and standards related to human and labour rights, welfare, and well-being with a particular focus on providing remedies (along with relevant partners) where labour abuse is detected.
- Implementation of existing international legal instruments and development.
- Support the achievement of the SDGs and targets, in particular 14.c Enhance the conservation and sustainable use of oceans and their resources by implementing international law as reflected in United Nations Convention on the Law of the Sea (UNCLOS), which provides the legal framework for the conservation and sustainable use of oceans and their resources.
- Prevent illegal activities (i.e., guns, drugs, and people smuggling) within ports.
- Increase port management of pollutant run-off and by-products of industrial activity.
- Encourage the use of technology to reduce pollutants in run-off and by-product water used in port facilities.
- Interface with regulatory programmes that decrease the environmental impact of port operations on the ocean.
- Encourage uptake of port-related guidelines for financial institutions to transition towards a sustainable blue economy to support alignment with other collaborating UN-led frameworks. A relevant tool is the [UN Environment Programme Finance Initiative \(UNEP FI\) Turning the Tide: How to Finance a Sustainable Ocean Recovery](#) and specifically, the [chapter on Ports](#).

CASE STUDIES

- In 2018, a collaborative initiative was launched by the United Nations Development Programme (UNDP) and the Global Environment Facility (GEF) in efforts to tackle the pressing issue of maritime wildlife trafficking. The project, which is financed by GEF and led by the World Bank's [Global Wildlife Program](#), has identified strategic routes and transit points between Africa and Asia that are often abused by traffickers. The main objective of this undertaking is to significantly reduce illegal trading in marine wildlife on a global scale. The partnership includes two significant African exit ports for wildlife contraband, namely Mombasa in Kenya and Dar es Salaam in Tanzania. These ports are frequently used by smugglers for the illegal transportation of Africa's poached wildlife, specifically ivory, pangolins, and rhino horns, towards Asia. Furthermore, the partnership aims to enhance collaboration amongst prominent African and Asian ports to combat illegal wildlife trafficking more effectively.
- The World Bank, facilitated by PENAf (Ports Environmental Network-Africa), launched in 2021 the [Sustainable Ports Partnership](#) (SPP) that brings together 22 port authorities in 19 West and Central African countries. The SPP is designed to encourage the transformation of port operations in West and Central Africa towards sustainability. The overarching goal of the program is to establish a cooperative and collaborative mechanism among port authorities and operators aimed at improving the positive environmental and social impacts of their operations and infrastructure development. This mechanism is also intended to reduce the negative effects on the ecosystems and communities located in proximate coastal areas. By fostering a sense of collaboration, the SPP can help promote a culture of environmental consciousness among port operators and authorities, paving the way for a sustainable future for both the ports and the surrounding communities.
- Last year the project [Unleashing the Blue Economy of the Eastern Caribbean](#) was launched by the World Bank to optimize the use of marine resources, to foster maritime tourism, to support fisheries and aquaculture, to reduce pollution and to strengthen maritime governance in Dominica, Grenada, St. Lucia, and St. Vincent and the Grenadines. The project supports the Eastern Caribbean Region with US\$60 million and will result in the improvement of the management and resilience of blue economy resources. This will have a positive impact on the growth of the islands' economies fostering local, national and regional development.

PRINCIPLE 6

FOLLOW AND SUPPORT THE DEVELOPMENT OF STANDARDS AND BEST PRACTICES THAT ARE RECOGNIZED IN THE RELEVANT SECTOR OR MARKET CONTRIBUTING TO A HEALTHY AND PRODUCTIVE OCEAN AND SECURE LIVELIHOODS.

GUIDANCE

- Collaborate across sectors and learn and exchange best practices across industrial sectors.
- Sharing best practices, guidelines, and standards for how ports can reduce impacts on the environment and ocean.
- Encourage adaptation of practices that reduce waste, spills, run-off and discharges from port facilities.
- Contribute to the definition of industry-wide standards, such as the [ESPO Green Guide](#).
- Adopt existing environmental standards for managing their activities (i.e., ISO standards).
- Conduct a climate impact risk-assessment and development of adaptation measures.
- Involvement of different stakeholders (including private ones) in the decision-making process.

CASE STUDIES

- About 60 ports and maritime organizations have adopted the [Environmental Ship Index \(ESI\)](#), which is one of the several voluntary standards available to ports to assess emissions and environmental performance of vessels. The ESI scores NO_x and SO_x emissions and gives a fixed bonus for documentation and management of energy efficiency and the installation of Zero Emission technologies at berth (e.g., Onshore Power Supply). The index also scores noise emissions and provides a fixed incentive for a noise reduction measurement report. The ESI is used to provide reduction in port dues for vessels that perform beyond compliance.
- [Green Award](#) is a voluntary quality assessment certification scheme based on inspection and certification of ships. After inspections, if the ships show performance above and beyond regulatory standards in terms of safety, quality and environmental performance, ships receive a Green Award certificate. The certificate is used in about 50 ports globally to provide incentives. About 300 ships and 45 companies, mostly in the bulk sector, are certified with Green Award.



PRINCIPLE 7

RESPECT HUMAN-, LABOUR- AND INDIGENOUS PEOPLES' RIGHTS IN THE COMPANY'S OCEAN RELATED ACTIVITIES, INCLUDING EXERCISE APPROPRIATE DUE DILIGENCE IN THEIR SUPPLY-CHAIN, CONSULT AND ENGAGE WITH RELEVANT STAKEHOLDERS AND COMMUNITIES IN A TIMELY, TRANSPARENT, AND INCLUSIVE MANNER, AND ADDRESS IDENTIFIED IMPACTS.

GUIDANCE

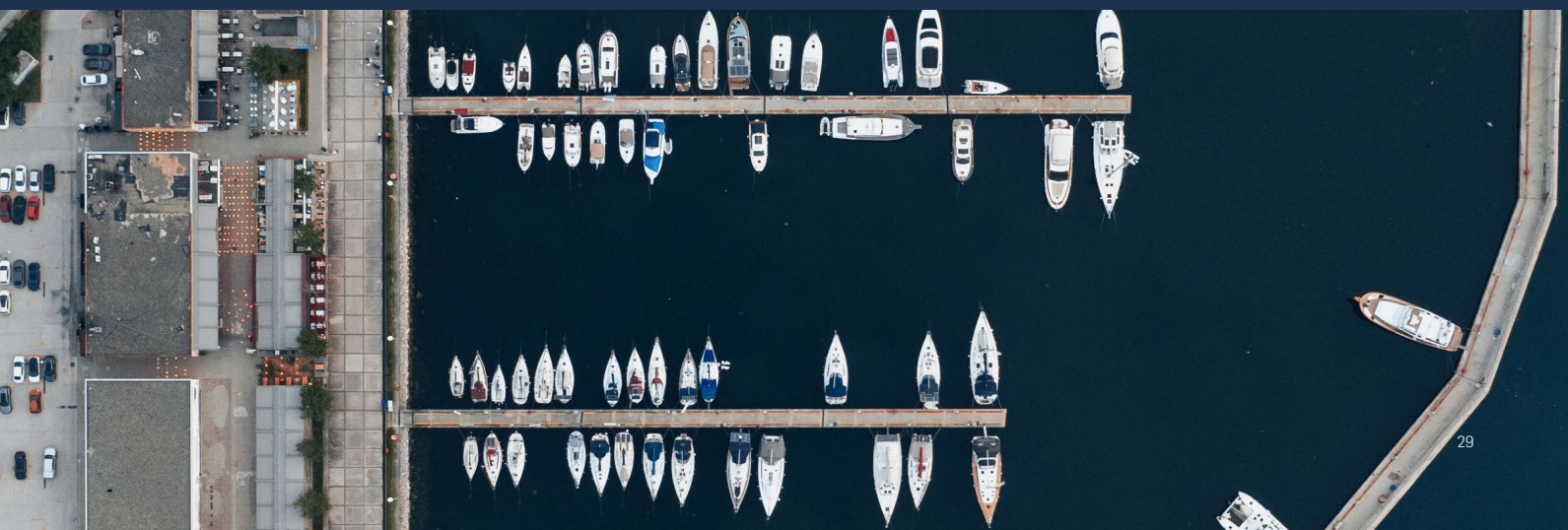
- Commit to respect the social, spatial, and natural environments where ports operate. Incorporate that commitment into ports' daily operations and growth strategies.
- Adhere to the [UN Guiding Principles on Business and Human Rights](#) (UNGPs) to ensure robust human rights due diligence throughout all operations. A relevant tool is the operational principles in The Corporate Responsibility to Respect Human Rights.
- Ensure visiting ships are registered to flag States that have ratified the International Labour Organization (ILO) [Maritime Labour Convention \(MLC\)](#) and where labour and human rights standards are in line with international standards (including ILO core labour standards concerning freedom of association, collective bargaining, forced labour, child labour, non-discrimination).
- Respect the local context: A relevant tool for port development and expansion projects is the Institute for Human Rights and Business (IHRB) [Dignity by Design Framework](#), which guides decision-making to ensure human and labour rights are respected in each of the six lifecycle stages of a built environment project: (1) land acquisition, (2) planning and finance, (3) inclusive design, (4) construction, (5) use and maintenance and (6) re-development. The Dignity by Design Framework can also help port authorities, local governments and developers respect the rights of local and indigenous populations while constructing or expanding port infrastructure. This can be achieved through timely and effective participatory approaches, such as consultation and co-design, to include local actors in the process. The Framework also provides guidance on how to adhere to the cross-cutting principles of transparency, non-discrimination and accountability in addition to participation.
- Collaborate with all other sectors (local governments, private companies, universities and scientific institutes, local NGOs, and communities) to understand concerns related to port development and expansion projects.
- Develop strategies and allocate budget to ensure sustainable waterfront development in participation and/or co-creation processes with all sectors, and ensure benefits are distributed among local communities as well.
- Follow [international standards](#) and [human rights guidelines](#) to ensure port [workers'](#) rights are respected regarding, for example, workers' welfare, safety, and security, scouting and training, job recruitment programmes and the impact of modernization and automation in the workforce.
- Open dialogues to include the wider community affected by projects (private partners, population, etc.), helping to anticipate potential conflicts and move projects forward.
- Adhere and follow existing guidance. There are two relevant tools in this context. The first relevant tool is the Code of Conduct for shipowners and operators (developed in collaboration between IHRB, the Sustainable Shipping Initiative, and the Rafto Foundation) on 'Delivering Seafarers' Rights' — which provides guidelines to improve the human rights and welfare of seafarers. Through its self-assessment tool, it encourages shipping companies to evaluate their performance, identify areas of improvement and make changes to their internal processes in order to adopt these guidelines. The Code of Conduct also facilitates due diligence in the port community — including other actors beyond shipping companies — serving as a reference with key areas of attention such as fair terms of employment, crewing levels (human power on board), working and living conditions, health, and well-being and access to remedy and due diligence in their supply-chain.

The second relevant tool is the Maritime Human Rights COVID-19 Due Diligence Tool which was published by the UN Global Compact, the ILO, the IMO and the UN Office of the High Commissioner for Human Rights (OHCHR). This tool is intended to help businesses uphold their responsibility to respect human rights in the maritime sector during the COVID-19 related crew change crisis through urgent measures. While the tool is a response to the COVID-19 crisis, its guidance on human rights due diligence is also useful beyond the context of the pandemic.

- Treat workers with respect. The [Dhaka Principles](#) are an important tool for employers to treat migrant workers with respect and dignity, and it can be applied to seafarers and port workers as well. For example, the idea of the “[Employer Pays Principle](#)” is that the employer (shipping company, recruiting agency or port authority) is responsible for paying the full costs of recruitment and placement, and not the worker. Engage responsible recruitment agents and the port in ensuring workers' rights are respected.
- Create mentoring and partnering programmes for environmental and social sustainability, climate resilience, and climate change impact reduction analysis, planning and actions, especially in ports and communities in the Least Developed Countries (LDCs) and SIDS. For this endeavor, platforms of dialogue and collaboration such as the [International Association of Ports and Harbors](#) (IAPH) and regional port associations are key.

CASE STUDIES

- The [Port of Rotterdam](#)'s corporate code includes commitments to human rights and working conditions, the environment and anti-corruption and follows the Ten Principles of the United Nations Global Compact. It also considers diversity and inclusiveness, understanding that “diversity in the workplace furthers the quality of teams, decision-making, and the agility and innovative capacity of the organization”. Regarding environmental sustainability, the port is committed to reduce carbon emissions by 4 per cent by 2030 compared with 1990 levels.
- The [Port of Cartagena](#) incorporates the SDGs into its operations as they present an understanding of sustainability in both social and environmental terms. The Port of Cartagena Group has taken important steps to contribute to each specific SDG by “building innovative solutions for the efficient use of resources, with a positive impact on the city”. To accomplish this, the port accounts for the direct impact of the port's companies and their collaborators on vulnerable communities in Cartagena and on service providers (the port community), the city and its natural resources. See an [infographic here](#) with specific actions and projects.
- Recruitment is another way in which companies, including Port Authorities (whether they are public, private or a combination), can implement their human rights commitments. The [Leadership Group for Responsible Recruitment](#) (LGRR) is a company-led collective composed of major international brands and expert organizations in responsible recruitment that works as a platform for commitment and advocacy. All members are publicly committed to the [Employer Pays Principle](#) and its implementation throughout their supply-chains. Ports and shipping companies can also follow similar initiatives to ensure workers' dignity in the ocean industry.



2.5. FINANCE

CHALLENGES AND OPPORTUNITIES OF THE SECTOR/RELEVANCE

As ports are important infrastructural nodes for transport and many ocean-based industries as well as the energy transition, necessary financing for this infrastructure plays a critical role in supporting the implementation of the Sustainable Ocean Principles. The cross-sectoral nature of many port investments and the fact that many port infrastructure developments are led by the public sector can make developing adequate financial models in support of sustainability challenging but can also be seen as an opportunity if adequate coordination and incentive mechanisms are in place.

Investment in ports can have an impact on related sectors such as shipping, fisheries, and offshore renewables. Decarbonization of the shipping sector, for example, relies on the development of projects at ports to reduce emissions while ships are berthed (e.g., onshore power supply) or to develop transport fuel storage and bunkering infrastructure in the case of the transition towards renewable low-carbon fuels, such as biofuels or green ammonia. The [Getting to Zero Coalition](#) estimates that between \$1 trillion to \$1.4 trillion of investments will be needed to decarbonize shipping in accordance with the IMO initial strategy of reducing the total sector's emissions well below 50 per cent of 2008 levels. Eighty-seven per cent of this investment will be on land and primarily on port infrastructure.

Many port investments have long payback periods and therefore, it is important to continuously invest in a pipeline of projects that will grow sustainable port projects for a zero-carbon and inclusive economy. Green and sustainable finance can sustain and support such a pipeline, at least for the more mature technologies, jointly with innovation from Governments and private companies. Ports can play a critical role in facilitating, coordinating and providing a physical location for these innovative solutions.

Most applications of green finance in port thus far have focused on land or shipping related investment. However, there is potential in developing sustainable port finance mechanisms to support a blue economy. Further definition and understanding of what makes truly sustainable blue economy projects will be a critical enabler. By way of example, IDB Invest has developed a set of criteria to help identify blue financing opportunities for ports. These are some of the tools and resources that can build on the momentum on blue finance and help to transform the port and ocean sectors.

Blue financing for ports can be defined in relation to the drivers and pressures associated with ocean activities, that lead to the following impacts:

- Loss or reduction in marine biodiversity.
- Loss of ecosystem resilience and provision of ecosystem services
- Loss or degradation of coastal marine habitats.
- Reduction in animal welfare.
- Increased GHG concentrations.
- Changes in marine biological, chemical and geologic cycles.
- Violation of human rights, including rights of indigenous communities.
- Perceived degradation in the cultural value of the environment.
- Reduction or loss of access to sustainable and inclusive livelihoods.
- Increased likelihood of injury, disease, or loss of life.
- Economic damage and loss of productivity.
- Inequality of opportunities on the bases of age, sex, disability, race, ethnicity, origin, religion or economic status.
- What also matters in the development of blue financing for ports is the materiality of risk to financial institutions. While these risks can be multifaceted and specific to each institution, an easement of the relationship between drivers to materiality can be made along the following risk types:
 - ▶ Physical: Risk to physical assets, often related to impacts of climate change.
 - ▶ Operational: Risk of interruption of ongoing activities, including supply-chain operations, logistics and other disruption of business operations.
 - ▶ Markets: Risk of changes to the market served by a sector, including shifts in the regulatory environment..
 - ▶ Regulatory: Risk of changes in the regulatory environment affecting the sector, including changes on how it may be taxed or subsidized.
 - ▶ Reputational: Risk of change in public perception manifesting as public campaigns, boycotts or purchasing decisions.

An important issue in the development of financial models for the port sector is the involvement of both public and private actors and how co-financing initiatives can be developed between ports and port users. For example, in offshore wind investments, there are opportunities for public and private funding, but often ports are not thought of as part of the overall investment.

Offshore wind is a good example of the challenges associated with developing financial mechanisms that include ports in sustainable activities. Current financing approaches in the United States and European Union in relation to offshore wind developments often involve funds from a developer (user), which are combined with funds from the owner/operator of the port that receives revenue from operation at the port and public sources (rate payer for electricity, which puts money into projects). This model has worked in ports owned by public entities, but for ports where the private sector has a more leading role, funding has been scarce. Furthermore, there is resistance to offshore wind projects, with local municipalities and fishermen protesting new developments. This calls for new approaches to better account for ocean restoration and health as well as the protection of biodiversity.

A further challenge that needs to be considered when looking at finance for ports is the impact of climate change and variability risk on ports (see previous chapter on adaptation and resilience). Considering climate risks (hazards, exposure, vulnerability) and international sustainable development commitments (2030 Agenda, Paris Agreement, etc.) there is a significant and urgent need for port infrastructure adaptation (resilience-building/ DRR) financing in coastal developing countries, in particular SIDS, which are sea-locked and thus mainly ocean-based economies³. Additional funds are urgently needed, and these should be more accessible and affordable (including financing in the form of grants, rather than loans, to avoid increasing debt burdens further). Funding is also required for technical studies (risk-assessments at local/facility level) to inform effective adaptation action and avoid maladaptation as well as for technology and for upscaling related human resources and capacity (education, skills, training). In light of projections, infrastructure lifespans and planning horizons and given what is becoming increasingly urgent.⁴

PARTNERSHIPS OF RELEVANCE

- The UN Global Compact Ocean Stewardship Coalition blue finance initiative convenes a group of stakeholders — including chief financial officers and their finance teams, investors, banks, second party opinion providers and multilateral institutions — to inform and drive progress to grow the market of sustainable ocean industries and financial mechanisms to fund them.
- UNEP Sustainable Blue Economy Finance Initiative, an UN-convened global community focused on the intersection between private finance and ocean health, supporting the implementation of the [Sustainable Blue Economy Finance Principles](#).

GUIDANCE

- Further development of financial tools to support port infrastructure that promotes decarbonization and resilience.
- Particular attention should be paid to port projects that enhance port resilience to safeguard investment in land-based infrastructure that will produce low-carbon fuels, land-based storage and bunkering facilities that are needed for the energy transition in shipping.
- Particular attention should be paid to resilient port projects that will contribute to protecting communities that live and work in the proximity of the port.
- The world needs to coalesce around standards for financing. Finance efforts are encouraged to align with Bonds to Finance the Sustainable Blue Economy: A Practitioner's Guide. This blue bond guidance, currently in consultative draft, was produced by five global institutions (UN Global Compact, UNEP FI, International Finance Corp (IFC) and the Asian Development Bank, and the International Capital Markets Association (ICMA)). The guide draws upon principles and frameworks of these five institutions, including ICMA's Sustainable Bond Principles, to which 98 per cent of all sustainable bonds are aligned.

³ UNCTAD (2022). Climate-resilience of seaports: Adequate finance is critical for developing countries but remains a major challenge. Policy Brief No. 103. <https://unctad.org/publication/climate-resilience-seaports-adequate-finance-critical-developing-countries-remains>

⁴ United Nations Conference on Trade and Development, Regina Asariotis, "Climate change impacts on seaports: A growing threat to sustainable trade and development", article No. 75, UNCTAD Transport and Trade Facilitation Newsletter, No. 90, 4 June 2021. <https://unctad.org/news/climate-change-impacts-seaports-growing-threat-sustainable-trade-and-development>

- To scale up investment in offshore renewable energy, a commensurate number of specialized ports to service this industry are needed.
- As funding for these types of ports is generally more expensive than traditional container ports and returns on investments tend to come over a longer period of time, different payback periods for these ports need to be accounted for.
- In order to maintain the cost competitiveness of offshore renewable energy (e.g., wind) vis-à-vis other fuels or energy sources, adequate financing for ports needs to be found. Provide coherent and complementary guidance for port actors to finance sustainable blue economy initiatives.
- It is important to account for different governance structures for ports, with different roles for the public and the private sectors.
- Adequate forms of public incentives need to be identified and developed.
- IDB Invest⁵ developed a relevant resource, [Climate Risk and Ports: A Practical Guide on Strengthening Resilience](#), which can be utilized by port developers and operators to help create an action plan to build resilience and reduce the adverse consequences of climate-related events. The guide provides information and analysis to better understand the climate context of a project, develop a risk-assessment, formulate adaptation measures, and establish monitoring and evaluation procedures.

CASE STUDIES

IDB Invest has collaborated with the UN Global Compact to further define and coalesce around blue bonds and see how the mechanism could facilitate blue economy growth in the region. As a multilateral development bank, IDB Invest supports growth and innovation for private companies through projects that achieve financial results for the company as well advance social and economic, and environmental development within member countries. The blue bond work defines the blue economy as the sustainable use of water and ocean-based resources for economic growth, improved livelihoods and jobs. Blue bonds can also finance companies that have a positive impact on ocean ecosystem health. This includes companies that are near to or in the waters (port infrastructure) or land-based companies in the ocean. Further, regarding alleviating the impacts of the COVID-19 pandemic and building back better, IDB Invest sees the blue economy as playing a key role.

IDB Invest issued its first blue bond as an institution in November 2021 in the lead up to COP 26 with a \$AU 50 million, 10-year fixed rate bond to fund operations related to water and sanitation, which lays a foundation for sustainable ports.

IDB Invest has supported quite a bit of port infrastructure activity in the Latin American and Caribbean region.

In January 2022, IDB Invest provided a US\$ 50 million corporate loan to Barbados Port Inc (BPI)⁴ to fund upcoming capital expenditures for the modernization of its operations, its first financing for infrastructure in Barbados. The loan supported the purchase and installation of a Waste to Energy (WTE) system consisting of a wet-dry incinerator and a steam rankine cycle turbine, the purchase and installation of up to 1.5 megawatts of additional rooftop photovoltaic solar capacity and repairs and upgrades to the port's berth #4.

Some of the blue objectives IDB Invest considers for ports are:

- Minimize pollution (prevention and control).
- Climate change mitigation — any infrastructure that reduces GHG reductions.
- Climate adaptation infrastructure to provide for increased resilience — as well as working with clients to make sure there is focus on natural resource and biodiversity preservation — and social indicators focus on local business procurement and job creation benefit.
- Design, construction, retrofitting and maintenance of port infrastructure, decarbonization infrastructure, renewable energy generation capacity, energy efficiency, retrofits and incorporation of low- and zero-carbon fuels.
- Resiliency and nature-based solutions, such as conserving mangroves, protecting living shorelines, use of green infrastructure for stormwater management as well as wastewater treatment plants adjacent to ports and solid waste management

⁵ IDB Invest, "IDB Invest Closes First Infrastructure Deal in Barbados to Support Port Development", 27 January 2022. Available at <https://idbinvest.org/en/news-media/idb-invest-closes-first-infrastructure-deal-barbados-support-port-development>.

2.6. DATA AND TRANSPARENCY

CHALLENGES AND OPPORTUNITIES OF THE SECTOR/RELEVANCE

- More scientific data is needed to identify and assess impacts before the practical steps can be taken to monitor and manage the environmental impacts of ports, especially in city-port interface areas.
- Evidence-based information and high-quality observational data is required to support effective decision-making and policy coherence in respect of climate-change mitigation, adaptation and DRR as well as sustainable development, which will be critical for progress on the objectives and commitments of the 2030 Sustainable Development Agenda as well as related international agreements, such as the Paris Agreement, Sendai Framework for Disaster Risk Reduction, the Addis Ababa Action Agenda and [SIDS Accelerated Modalities of Action \(SAMOA\)](#) Pathway and in the context of COVID-19 recovery strategies.
- More resources are needed to help ports make emissions inventories, which many have not yet done as it can be difficult, especially when it requires expenses out of a public agency's budget. Greater incentives could also motivate more ports to make emissions inventories.
- Ports themselves are significant economic entities that have a responsibility for accountability to their stakeholders. At times, the complexity of the organizational structures of certain ports means that reporting from many individual organizations would be needed to provide a complete account of port-related activities and impacts. As such, there is a role for a 'whole port' account of the economic, environmental, and social outcomes of a port along with an indication of the accountability of individual organizations within the port system.



PRINCIPLE 8

WHERE APPROPRIATE, SHARE RELEVANT SCIENTIFIC DATA TO SUPPORT RESEARCH ON AND MAPPING OF RELEVANCE TO THE OCEAN.

GUIDANCE

- Take part in ocean and environmental data-gathering programmes to contribute to our understanding of ocean health, whether individually or through partnerships with research facilities, NGOs, or other interested parties.
- Partner with scientific and research institutions for environmental improvement and monitoring.
- Contribute towards the data collection for scientific and conservation programmes.

CASE STUDIES

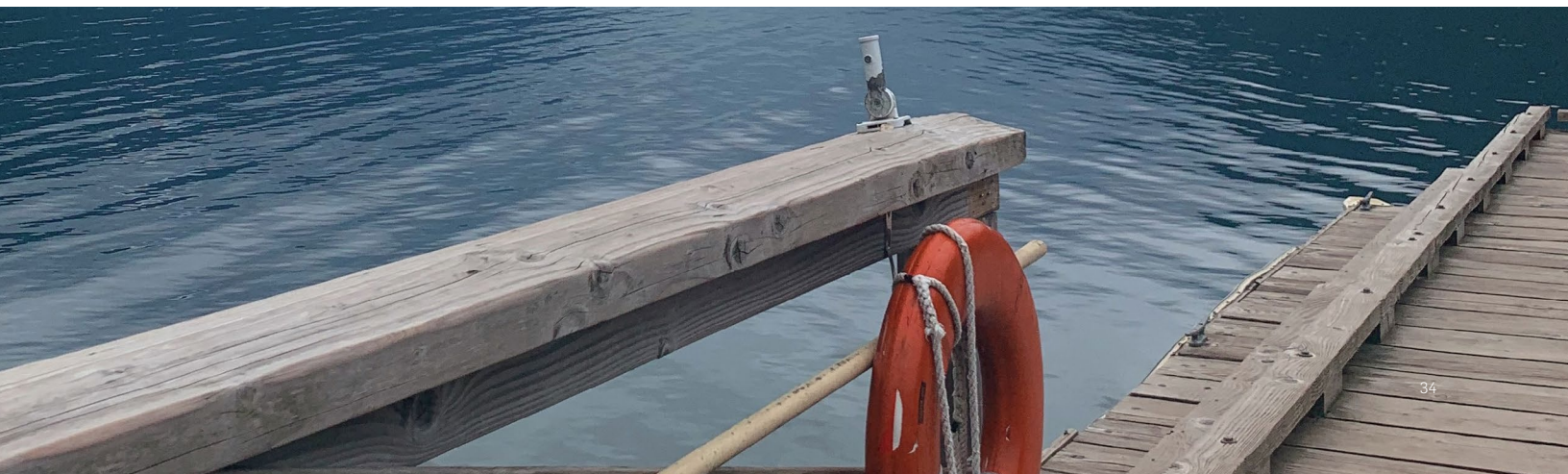
- The IAPH has developed [Cybersecurity Guidelines for Ports and Port Facilities](#).

PRINCIPLE 9

BE TRANSPARENT ABOUT THEIR OCEAN-RELATED ACTIVITIES, IMPACTS AND DEPENDENCIES IN LINE WITH RELEVANT REPORTING FRAMEWORKS.

GUIDANCE

- Make stored data available to interested stakeholders.
- Identify and use the most appropriate channels for ensuring transparency and disclosure, incorporating existing industry frameworks and established policies. Commonly used general sustainability frameworks such as the UN Global Compact Communication on Progress, Global Reporting Initiative (GRI) Guidelines and Sustainability Accounting Standards Board (SASB) represent global best practice for reporting on a range of economic, environmental, and social impacts.
- Consider framing reporting around ocean stewardship or incorporating ocean impact into current reporting.
- Utilize resources to make emissions inventories. Many ports have not yet made these inventories. A relevant tool is the [United States Environmental Protection Agency \(EPA\) Port Emissions Inventory Guidance](#), which provides methodologies on how to develop port-related and goods movement emissions inventories.





- The Maritime Port Authority of Singapore has implemented the [digitalOCEANS™ \(Open/Common Exchange And Network Standardisation\)](#) initiative, which aims to harmonize application programming interface (API)/data standards and achieve ship-port data exchange interoperability along the maritime transport chain process. In doing so, digitalOCEANS can facilitate an efficient processing of port reporting requirements and formalities.
- In 2023, the Port of Cartagena Group shares its third report on contributions to the Sustainable Development Goals on the occasion of the completion of 30 years of operation, with its corporate bodies, allies and stakeholders. The report concludes that its activity directly contributes to the 17 SDG and to more than 100 of the 169 goals outlined by the United Nations for the 2030 agenda, integrating a harmonious vision between environmental, economic and social objectives.
- The [Port of HaminaKotka](#) will have a unique 3D operating system supplied by the Finnish technology company VRT Finland Oy. The Port of HaminaKotka will introduce comprehensively a 3D operating system developed by VRT Finland to intensify the daily operations of the entire port. The Port of HaminaKotka has utilized the VRT BIM 3D online service partially even before this, and the upcoming expansion of the system will render the Port of HaminaKotka one of the first port operators globally to utilize digitalization comprehensively. The system enables efficient saving, comparison, sharing and intelligent utilization of 3D materials in the everyday operations and maintenance of the port, and a concentration of data in one place. The comparison of materials compiled of the same item enables the anticipation of repair and maintenance projects and their smooth execution.



OCEAN STEWARDSHIP COALITION



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