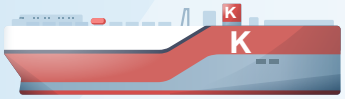
Section

04

Environmental



Environmental Management

"K" LINE Group Environmental Policy

"K" LINE Group Environmental Policy

The "K" LINE Group is aware that our business activities can have an impact on the global environment, and we therefore set forth in our environmental policy our determination and commitment to minimize the impact of our business activities on the global environment.

So that we can successfully promote our environmental activities in accordance with the environmental policy, the Corporate Sustainability Management Committee, which is led by the president & CEO, discusses and develops policies for promoting the sustainability activities of the entire "K" LINE Group with two subcommittees: the Sustainability Sub-Committee and the Environmental Sub-Committee. The Environmental Sub-Committee meets twice a year, bringing together top management, environmental managers, and assistant environmental managers from each division of the Company to prepare basic plans and set targets on environmental matters for the Group, monitor progress toward these targets, evaluate the results, and reconfirm or review the targets.

In addition, all Group companies come together so that the entire staff working for the "K" LINE Group unites to promote environmental activities, and we hold a Group Environmental Conference every year to discuss and share awareness of current environmental issues.

"K" LINE Group Environmental Policy

▶ **Core Concept**

The "K" LINE Group is aware and recognizes that addressing environmental concerns is an issue shared by all humankind. Therefore, the "K" LINE Group is taking proactive measures as an essential condition for its existence and for conducting a business enterprise, striving to reduce the environmental impact of its business activities and seeking to contribute to the development of a sustainable society.

▶ **Conduct Guidelines**

1. We are setting objectives and targets for environmental preservation and making improvements on an ongoing basis to reduce the impact on the environment from our business activities. Furthermore, we are complying with all environmental treaties, laws, and regulations as well as policies and voluntary standards to which the "K" LINE Group has consented.
2. We are striving to protect the global and marine environment through fleet-wide implementation of safe operation practices and are establishing the organizations and structures necessary for such implementation.
3. We are promoting research, development, and introduction of ship facilities and equipment to improve ship energy efficiency and operating efficiency, which results in the reduction of greenhouse gas emissions and the prevention of atmospheric pollution.
4. In consideration of biodiversity, we are maintaining an awareness of the impact that the transport of ballast water and living organisms that attach to ship hulls have on ecosystems and are working to protect those ecosystems.
5. We are contributing to establishing a recycle-based society by promoting the 3Rs (reduce, reuse, and recycle) and the effective re-use of resources, including ship recycling.
6. The entire "K" LINE Group will continue to support and participate in social contribution activities intended to protect the environment.
7. We are conducting education and training programs to elevate awareness and understanding of environmental preservation issues among each member of the entire "K" LINE Group.

(Revised in August 2012)

"K" LINE Environmental Vision 2050: Long-Term Environmental Guidelines for 2050

Revised "K" LINE Environmental Vision 2050:
2050 Goals and 2030 Interim Milestones

We successfully achieved most of the 2019 interim milestones of the "K" LINE Environmental Vision 2050, which was formulated by the "K" LINE Group in March 2015. At the same time, we recognize that the business environment and demands of customers have changed since the formulation of the vision and there is a need to respond to the impact of climate change and the increasing demands for decarbonization. Accordingly, in June 2020, we announced our revised "K" LINE Environmental Vision 2050, with targets reorganized around the two issues of decarbonization and the aim for zero environmental impact. This vision shows the formulation of new 2050 goals and 2030 interim milestones.

"K" LINE Environmental Vision 2050

Revision of 2050 Targets:
The Challenge of Achieving Net-Zero GHG Emissions

In November 2021, we revised the 2050 goals for decarbonization in the "K" LINE Environmental Vision 2050. Reinforcement of global climate change countermeasures has become an urgent issue and the drive to achieve net-zero greenhouse gas (GHG) emissions by 2050 is gaining momentum in every country and every industry. Amid these circumstances, the Group is also taking on the challenge of raising its target even further to net-zero GHG emissions by 2050.

The Challenge of Achieving Net-Zero GHG Emissions

System

Environmental Management System

Establishment of an Environmental Management System (EMS)

We have established an EMS based on ISO 14001*1 and operate it to make constant improvements by identifying environmental impacts and minimizing them. We implemented the EMS in February 2002, after obtaining certification from a third-party organization. Since then, we have been striving to enhance our environmental activities by using annual reviews and renewal periods to check and ensure that our EMS complies with the ISO 14001 standard, is conducted in line with the PDCA cycle*2, and is improved and corrected accordingly.

*1 ISO 14001 is an international EMS standard set by the International Organization for Standardization (ISO). Requirements for the EMS are stipulated in ISO 14001.

*2 Processes are separated into four steps: plan, do, check, and act (PDCA). Following this cycle is one management method to continuously improve business activities.

ISO 14001 Certification


DNV

MANAGEMENT SYSTEM CERTIFICATE

This is to certify that the management system of

Kawasaki Kisen Kaisha, Ltd.

Iino Bldg., 2-1-1 Uchisaiwaicho, Chiyoda-ku, Tokyo, 100-8540 Japan

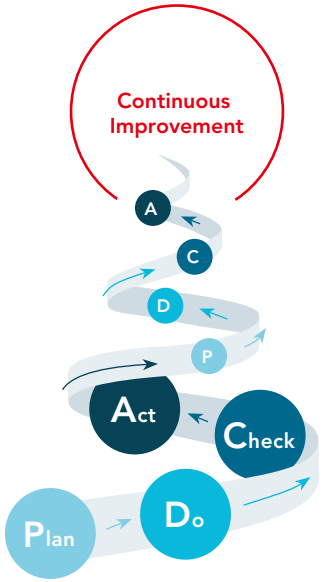
and the sites as mentioned in the appendix accompanying this certificate

has been found to conform to the Environmental Management System standard:

ISO 14001:2015 = JIS Q 14001:2015

This certificate is valid for the following scope:

Water Transport Service and Ship Management of Kawasaki Kisen Group Owned Ships. Maritime Consulting Services.



Acquisition Status of Environmental Certification

"K" LINE Group companies have acquired various environmental certifications, including ISO 14001, and we are making a Groupwide commitment to environmental protection. Group companies that have acquired ISO 14001 certification account for around 79% of our Groupwide net sales.

Acquisition Status of Environmental Certification

DRIVE GREEN NETWORK

Guided by "K" LINE Environmental Vision 2050, our long-term environmental management vision, we are building and operating DRIVE GREEN NETWORK, a framework to promote environmental management for the entire Group.

We are using DRIVE GREEN NETWORK to centrally control our environmental management initiatives (such as setting environmental policies and targets and working to achieve them) through internal audits and the like. We aim to continuously pursue environmental protection activities by actively using the PDCA cycle while ensuring environmental compliance across the entire Group.

The name DRIVE GREEN NETWORK reflects our desire of inheriting the spirit put into the construction of the DRIVE GREEN HIGHWAY, our environmentally friendly next-generation flagship completed in 2016 under the concept of getting one step ahead for the future.

Environmental Targets and Results

Action Plan / Environmental Targets

Based on our EMS, we continuously run our PDCA cycle. We have set our environmental targets for the year in line with the "K" LINE Environmental Vision 2050 and "K" LINE Group Environmental Policy. We have appropriately reviewed our achievements and have used these outcomes to set our targets for next year. These environmental targets include not only measures related to ship operations but also specific measures for office sites, such as the reduction of both water consumption and waste.

Environmental targets for 2024

Results of Our Environmental Activities

2023 Results

Response to Climate Change / TCFD Framework-Based Information Disclosure

Approach

Environmental Initiatives and Response to the TCFD

Climate change is expected to expose humankind to major physical risks, such as serious natural disasters.

In June 2020, we reviewed our "K" LINE Environmental Vision 2050, and based on the results of the scenario analysis proposed by the Task Force on Climate-related Financial Disclosures (TCFD), we identified issues to be addressed and revised some targets. Furthermore, in November 2021, we recognized global climate change countermeasures as an issue that must be strengthened by the entire international community, and we therefore set a higher challenge of net-zero GHG emissions by 2050. In addition, as a long-term vision in our medium-term management plan announced in May 2022, we are committed to smoothly switching to other forms of energy for our company and society. We will promote the realization of a low-carbon and carbon-free society.

In August 2024, to reflect the ever-changing latest circumstances, we have reviewed our scenario analysis recommended by TCFD and conducted trial calculations of the financial impact of climate change risks and opportunities in the four areas - governance, strategy, risk management, and metrics and targets - to expand the content of our disclosure.

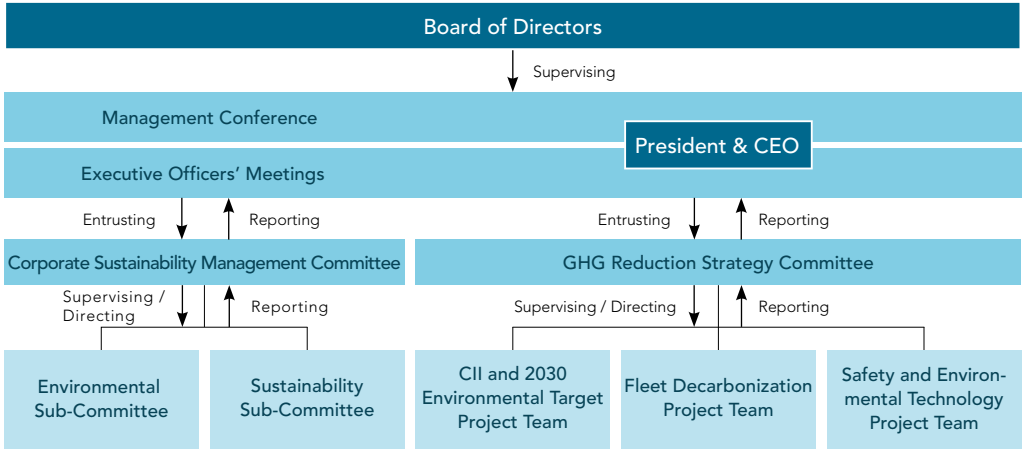
TCFD Framework-Based Information Disclosure

Environmental Governance

Governance System for Environmental Risks and Opportunities

In April 2021, the "K" LINE Group restructured the existing organization and reformed the promotion system for sustainability to ensure it is a key management objective. The Corporate Sustainability Management Committee, chaired by the president & CEO, meets approximately once every two months, and works to enhance corporate value by reviewing and formulating a promotion system for the "K" LINE Group's sustainability management. Another function of the committee is to identify climate-related risks and opportunities and monitor the progress of responses to them.

Additionally, in October 2021, we established the GHG Reduction Strategy Committee by integrating the Alternative Fuel Project Committee, which is in charge of accelerating initiatives for conventional vessels fueled by liquefied natural gas (LNG) and the LNG fuel supply business and examining next-generation fuel and new technologies, with the Environment / Technology Committee, which formulates measures for compliance with environmental regulations, including technical aspects. These two committees, the Corporate Sustainability Management Committee and the GHG Reduction Strategy Committee, function as forums for strategic discussions.



Overview of Strategy

Risks and Opportunities

Responses to Major Risks and Opportunities

Through internal surveys and interviews with relevant departments, we organized the likelihood, time of occurrence, and financial impact of risks and opportunities related to climate change, and analyzed their degree of importance for our business. After that, we identified each risk and opportunity, considered the implications for the businesses, and determined responses.

Risks and opportunities arising from changes in policies and regulations, reputation change among stakeholders, and changes in technology			Implications for business				
Types (root causes)	Events (qualitative factors)	Specific examples (quantitative factors)	Likelihood	Timing of occurrence	Financial impacts	Degree of importance for our business	Consideration of implications for business and responses (examples)
Changes in policies and regulations	Tougher EEDI and EEXI regulations Introduction of carbon taxes and emission trading, etc.	Transition Risks: Increased carbon tax costs, increased operational costs, and increased shipbuilding costs	High	Short to medium term	Medium	High	Aim to secure environmental superiority by enhancing operational efficiency through digital transformation (DX), expanding the use of LNG-fueled vessels and marine biofuels, and exploring the deployment of alternative fuel vessels using ammonia, methanol, hydrogen, etc. Consider accounting for the costs of carbon taxes and investments in alternative fuel vessels in revenue.
Reputation change among stakeholders	Reputation among customers	Transition Risks / opportunities: Reputation change due to delayed decarbonization efforts	Medium	Short to medium term	High	High	Disclose our various advanced environmental initiatives, including efforts to reduce GHG emissions, in a timely manner in our Integrated Report and on our website to showcase our low-carbon and decarbonization efforts.
Changes in technology	Adoption of new technologies on ships	Opportunities: Demand from decarbonization-related businesses	High	Short to medium term	Medium	High	In January 2024, we established OCEANICWING S.A.S. in France. This company, which has taken over the business of Airseas following its spinoff from Airbus, is focused on further enhancing and accelerating the development and commercialization of Seawing technology. Seawing is a new technology that can be installed on any type of vessel, including retrofitting existing ships, and we are considering deploying it on every kind of vessel.
Changes in market principles	Provision of low-carbon services	Opportunities: Demand from decarbonization-related businesses, increased cargo transportation volume	High	Short to medium term	High	High	Regarding the LCO_2 Transportation Business, we are taking part in a pilot project in Norway (contract for three vessels for Northern Lights), and two of the vessels are scheduled to participate in the world's first full-scale CCS value chain project from 2024. Build expertise and know-how, mainly in Europe.
Chronic or acute climate change including temperature rise, sea level rise, and extreme weather	Disruption of transportation routes, changes in transportation routes, load shifting or seawater exposure of cargo	Physical Risks: Increased risk of vessel damage, increased operational costs, elevated litigation risk, increased compensation payments	Low	Long term	Low	Low	Reduce risk of entering high-wave areas, ship rolling, and load shifting by using Kawasaki Integrated Maritime Solutions / NAVI to select the optimal route based on weather and sea-condition forecasts. Currently deploying an app for predicting specific rolling motions that could cause load shifting on container ships. Introduce a fleet monitoring system to enhance management for safe operations, such as avoidance of encounters with extreme weather.

* Transition Risks (Policies and regulations, Reputation, Technology, Market principles), Physical Risks (Chronic or acute)

Scenario Analysis

Assumptions for Scenario Analysis

To assess the sustainability and resilience of our management strategy with respect to the long-term and uncertain issue of climate change, we consider three scenarios: 2.4°C Scenario, 1.7°C Scenario, and 1.4°C Scenario. We assess the quantitative financial impacts of risks and opportunities stemming from climate change in the event that they should actually materialize, and consider responses to them. Additionally, for physical risks, we analyze them under a scenario with an even higher temperature rise than 2.4°C (3.0°C or more, equivalent to RCP 8.0).

2.4°C Scenario (STEPS)

This scenario assumes that measures currently being implemented to achieve the goals and objectives set by governments will remain in place, and that current policy stances will be maintained going forward (aligned with the IEA's "World Energy Outlook 2023 (WEO2023)" Stated Policies Scenario (STEPS))
(financial impact assessment: Under 2.5°C Scenario)

1.7°C Scenario (APS)

This scenario takes into account all climate-related commitments of governments, including NDCs and long-term net-zero targets, and assumes that they will be fully achieved by the deadlines that have been set, such that all countries that have pledged to attain net zero will indeed do so (aligned with the IEA's "World Energy Outlook 2023 (WEO2023)" Announced Pledges Scenario (APS))
(financial impact assessment: Under 2.0°C Scenario)

1.4°C Scenario (NZE)

This scenario assumes that universal access to energy will be available by 2030, that air quality will be significantly improved, and that the key components of the United Nations Sustainable Development Goals related to energy will be accomplished, such that net zero will be achieved by 2050 (aligned with the IEA's "World Energy Outlook 2023 (WEO2023)" Net Zero Emission by 2050 Scenario (NZE))
(financial impact assessment described later: Under 1.5°C Scenario)

Response to Climate Change / TCFD Framework-Based Information Disclosure

Assumptions / conditions for financial impact calculation

Financial impact calculations are based on the IEA's "World Energy Outlook 2023 (WEO2023)," and where data was inadequate, assumptions have been made with reference to data from external information providers.

	Scenario	Unit	FY2030	FY2040	FY2050
Carbon price for each scenario	1.4°C (NZE)	USD/tCO_2	140	205	250
	1.7°C (APS)	USD/tCO_2	135	175	175
	2.4°C (STEPS)	USD/tCO_2	42	67	67

Source: IEA World Energy Outlook 2023

Exchange rate To eliminate the impact of currency fluctuations across different decades and scenarios, a uniform exchange rate of 1 USD = 120 JPY was used

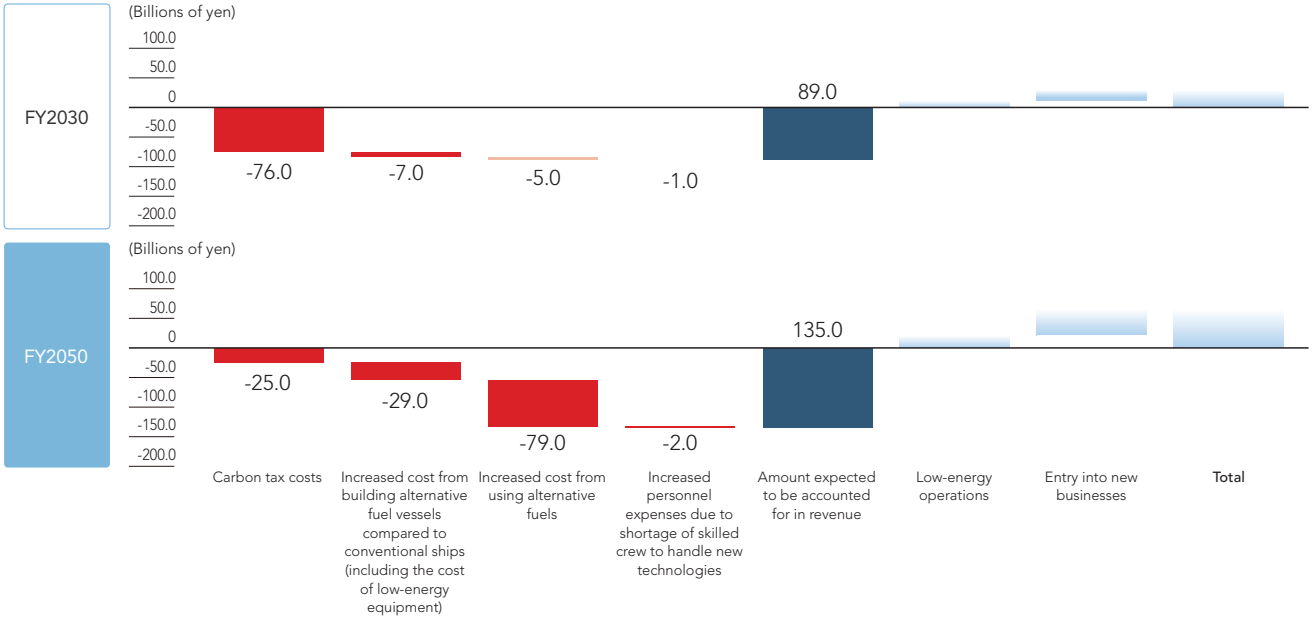
Fleet plan transition Our policy is to shift to alternative fuel vessels regardless of the scenario, thus fleet transition is the same for each scenario.

	Vessel type by fuel type	Unit	FY2030	FY2040	FY2050
Fleet plan transition	FO	Vessel	187	71	4
	LNG	Vessel	35	35	10
	NH3	Vessel	14	133	234

Results of the Financial Impact Assessment

We identified the following four factors as influences. The results of our estimation of financial impacts reiterated to us that regardless of the temperature scenario, if no action is taken to reduce and eliminate carbon use, negative impacts on our company will continuously occur over the long term. They also led us to recognize the quantitative impact of increased costs associated with low-carbon and decarbonization measures that we will incur under every scenario, and we realized that if we are to continue to develop the company's business and contribute to making people's lives more comfortable, we will need to get society as a whole to bear the increased costs of low-carbon and decarbonization measures that cannot be covered through in-house efforts alone by accounting for them in revenue.

Under 1.5°C Scenario



The "K" LINE Group is taking steps to reduce GHG emissions in order to achieve low-carbon and carbon-free itself and throughout society and will invest a total of ¥380 billion by 2026 in fuel conversion, installation of technology such as Seawing, and transport of liquified CO_2, etc., to establish competitive advantages while meeting needs for low-carbon and carbon-free operations.

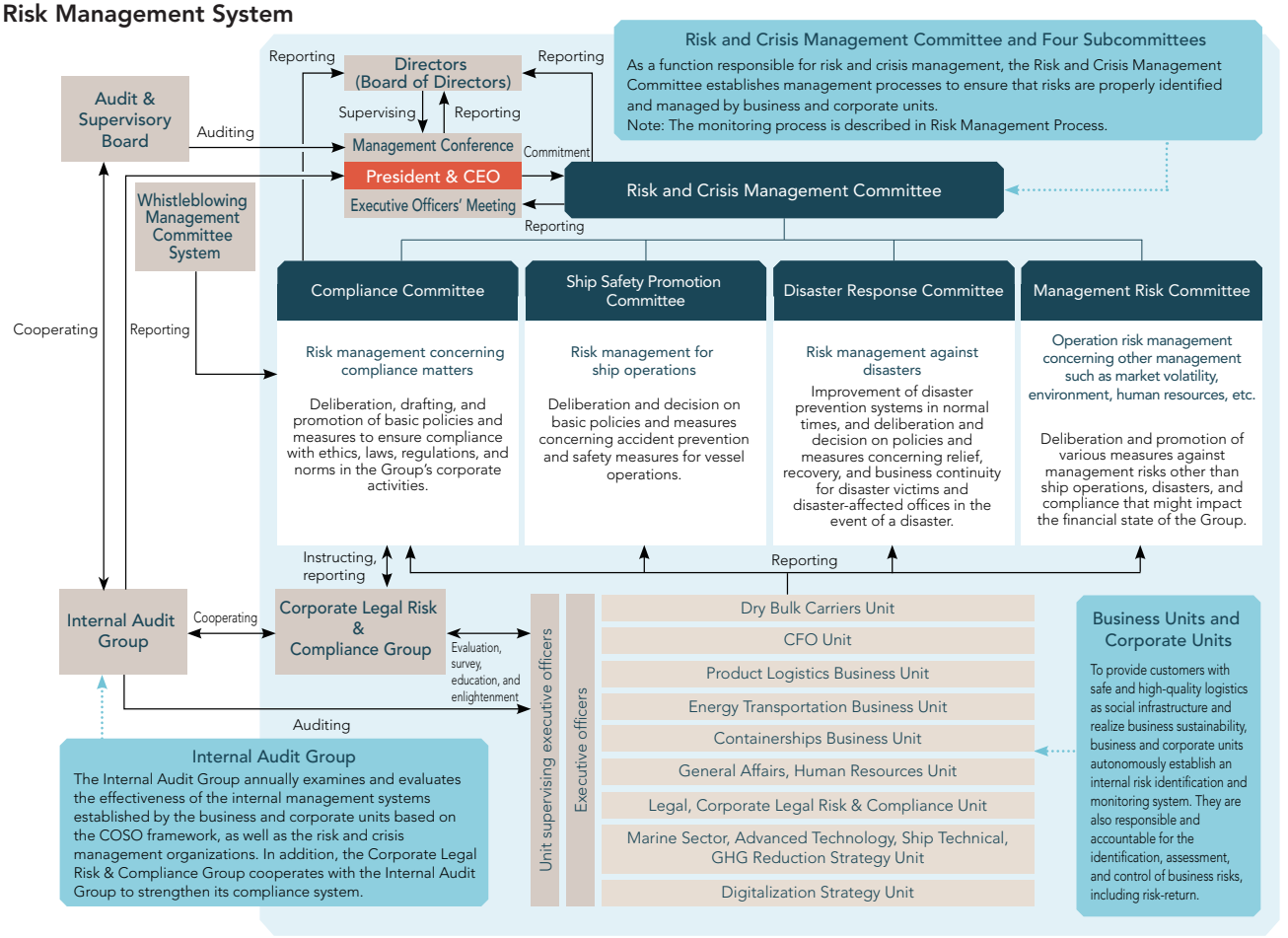
Risk Management

Risk Management Policy

We recognize the impact of external changes and the various risks our operations are exposed to, and we have established a risk management system that will enable us to fulfill our corporate social responsibilities even when risks materialize.

- We classify major risks into four categories: risks associated with ship operations, disaster risks, compliance-related risks, and other business-related risks, and we set up committees to address the risks in each category.
- Additionally, we have established a Risk and Crisis Management Committee as an organization that brings together these four committees and oversees and promotes overall risk management.
- The president serves as the chair of all these committees, with meetings held quarterly even during normal times to strengthen risk management.
- The four committees for major risks provide training for risk management at regular intervals and on an ongoing basis. For example, we build up readiness by organizing largescale accident drills and having personnel participate in risk management workshops with other companies. Each year, November is designated as Compliance Month, during which the importance of compliance is thoroughly communicated.
- The Group is acutely aware of the importance of sustainability as essential infrastructure that supports people's lives and the economy. To address risks and leverage opportunities related to environmental conservation and climate change, we conduct scenario analysis on climate change and have formulated the "K" LINE Environmental Vision 2050.

Risk Management System



Metrics and Targets

As we move closer to 2030, we will be steadily executing an action plan to achieve the interim milestone goals set forth in the "K" LINE Environmental Vision 2050. Our new goal for 2050 is to achieve net-zero GHG emissions. Furthermore, we will be providing support for the decarbonization of society, with the aim of "contributing to the well-being and prosperous lifestyles of people around the world."

GHG Emission Reduction Targets

2030 interim milestones

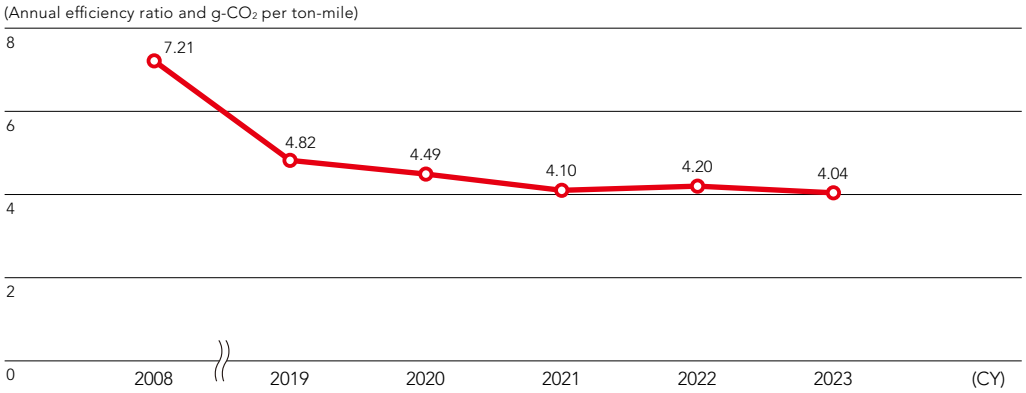
"K" LINE low-carbon transition:
Improve CO_2 emission efficiency by 50% by 2030 (compared with 2008 levels)
Support development of a low-carbon society:
Transport and supply new energy for a low-carbon society

2050 targets

"K" LINE decarbonization: Take on the challenge of net-zero GHG emissions
Support the decarbonization of society: Be a transporter and supplier of new energy

GHG Emission Result

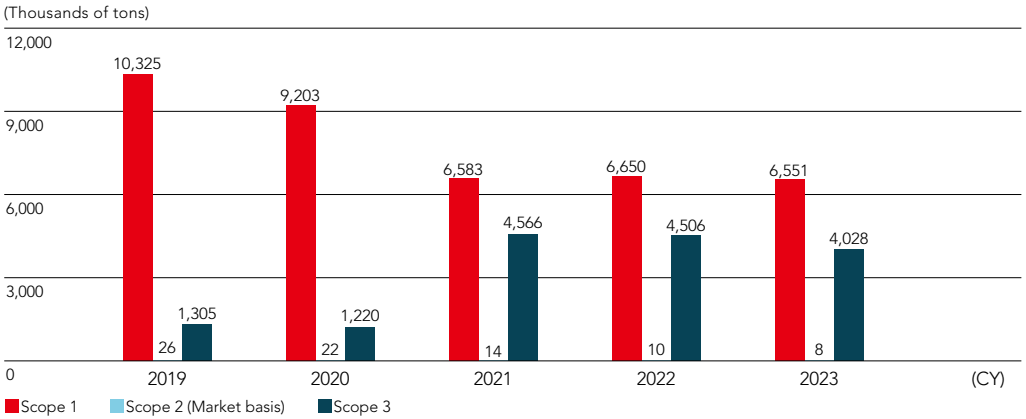
Greenhouse Gas (GHG) Emissions per Deadweight Ton-Mile



In 2020, we formulated a revised version of "K" LINE Environmental Vision 2050. We have aligned our CO_2 emission efficiency indicators with the targets of the International Maritime Organization (IMO) by setting 2008 as a base year and calculating AER*1. The scope of aggregation has been revised from 2021. Vessels not under our operations are excluded. In 2023, our GHG emissions per deadweight ton-mile were 44.0% lower than those of 2008.

*1 The average CO_2 emissions from a vessel per deadweight ton-mile (1,852 meters)

Greenhouse Gas (GHG) Emissions*2 (Scopes 1, 2, 3)



CO_2 emissions are calculated based on the "K" LINE Group's fuel and electricity consumption, and third-party certification is obtained for these calculations. The scope of aggregation has been revised from 2021. Vessels not under our operations are excluded for Scope 1 and container vessels are included for Scope 3.

*2 The scope of calculation is "K" LINE's scope of consolidation, which corresponds to almost 100% of sales.

"K" Line Low-Carbon and Carbon-Free Targets and Progress

We are examining specific issues, such as vessel fleet management, with an eye on 2050, while verifying road maps and progress toward the attainment of 2030 interim milestones in the "K" LINE Environmental Vision 2050.

Summary of Low-Carbon and Carbon-Free Initiatives

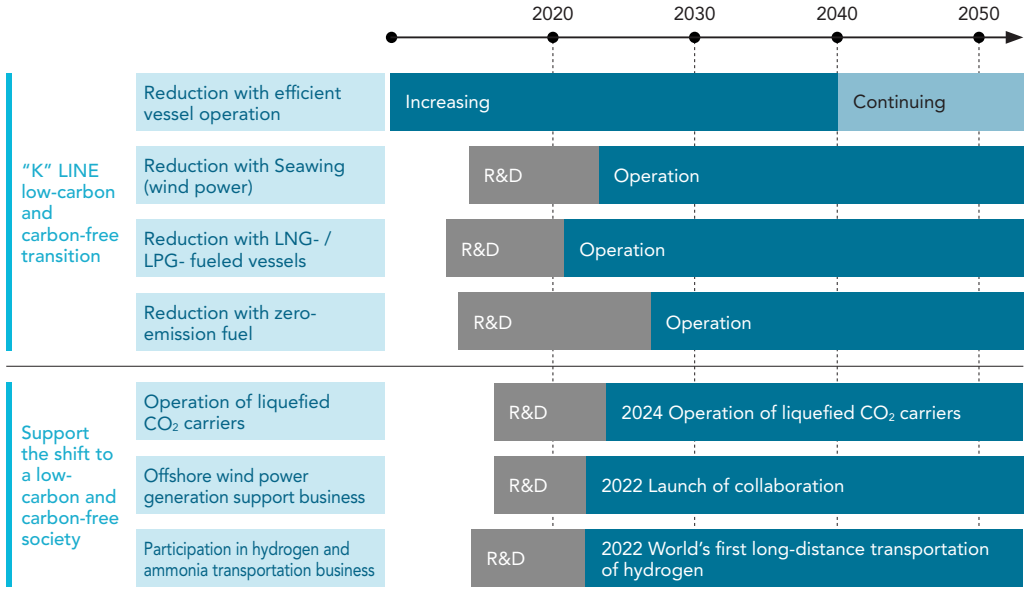
The "K" LINE Group is taking steps to reduce GHG emissions in order to achieve low-carbon and carbon-free itself and throughout society and will invest a total of ¥380 billion by 2026 to establish competitive advantages while meeting needs for low-carbon and carbon-free operations.

			Investment amount (2022 to 2026)	GHG emissions reduction effect	KPI for measuring progress
"K" LINE low-carbon and carbon-free transition	Fuel conversion (use of clean energy)	LNG- / LPG-fueled vessels	¥267.5 billion	20 to 30% reduction vs. previous vessels	Number of LNG- / LPG- fueled vessels
		Zero-emission vessels		Zero emission	Number of zero-emission vessels
	Environmentally friendly equipment (use of wind power, etc.)	Seawing, etc.	¥21.0 billion	Up to 20% reduction vs. previous vessels Note: this depends on the speed of the vessel, the route, and season.	Number of ships with Seawing (around 50 vessels by 2030)
	Development and demonstration of environmental technology	Installation of Kawasaki Integrated Maritime Solutions (operation efficiency)	¥5.5 billion	3 to 5% or more reduction vs. previous vessels	100%*1 installation of Kawasaki Integrated Maritime Solutions on owned / medium- to long-term chartered vessels
		Hybrid EV tug boats, etc.		—	
Support the shift to a low-carbon and carbon-free society	New business that promotes low-carbon achievement	Liquefied CO_2 transport	¥72.0 billion	—	Consider based on business characteristics (three liquefied CO_2 vessels are scheduled to begin operations as of December 2024)
		Support for wind power generation installations, etc.			
Other environmental investments	—	—	¥14.0 billion	—	—

*1 Kawasaki Integrated Maritime Solutions will be installed as standard on newly built vessels, and has already been installed on vessels we own that are currently in operation.
By the end of fiscal 2024, installation of Kawasaki Integrated Maritime Solutions will be completed on all medium- to long-term chartered vessels for which installation is planned (excluding short-term chartered vessels). To expand our fleet of vessels equipped with the system, we will continue, on an ad hoc basis, to add more ships to the list of vessels on which the system is to be installed.

Note: KPIs are based on "K" LINE's assumption on the development of related technology and infrastructure, related regulation, and economics as of today and are subject to change depending on future trends.

Road Map for "K" LINE Low-Carbon and Carbon-Free Initiatives



Low-Carbon and Carbon-Free Initiatives at "K" LINE

We are making the shift toward ships fueled by LNG, LPG, and new zero-emission fuels such as ammonia and hydrogen from the perspective of achieving a low-carbon and carbon-free transition at "K" LINE.

1. New Fuels (Fuel Conversion)

Expand introduction of LNG- / LPG-fueled vessels

- During the 2020s, we are expanding the introduction of LNG- / LPG-fueled ships, and are planning to have approximately 35 such vessels deployed by 2030

Introduce LNG-fueled vessels

- Delivered "K" LINE's first LNG-fueled car carrier, CENTURY HIGHWAY GREEN, in March 2021
- In May 2024, our first LNG-powered 210,000 dwt cape-size bulker CAPE HAYATE was delivered
- We are planning to add 13 LNG-fueled car carriers to our fleet deployed by 2026

LNG vessels have a CO_2 emission reduction effect of approximately 25 to 30% compared to conventional heavy oil vessels

CAPE HAYATE

Car Carrier POSEIDON HIGHWAY with a capacity of 7,000 vehicles

Introduction of zero-emission vessels, including ammonia-fueled vessels, and carbon-neutral fuels such as biofuels

- Considering the introduction of zero-carbon-emission fuels such as ammonia/hydrogen as well as synthetic and other carbon-neutral fuels
- Planning to have approximately 20 such zero-carbon-emission vessels deployed by the mid-2030s
- In November 2022, Kawasaki Kisen Kaisha, Ltd. ("K" LINE), together with ITOCHU Corporation, Nihon Shipyard Co., Ltd., MITSUI E&S Co., Ltd., and NS United Kaiun Kaisha, Ltd., obtained an Approval in Principle (AiP) from Nippon Kaiji Kyokai (ClassNK) for the design of an ammonia-fueled vessel (200,000 deadweight ton class bulk carrier). Then in April 2024, we signed a memorandum of understanding with MAN Energy Solutions on joint development to commercialize ammonia-fueled vessels.
- Operated pilot voyage using B100 biofuel (marine biofuel made of 100% biodiesel) in May 2024
- In November 2024, Group company Daito Corporation decided to build an electric tugboat powered by large-capacity lithium-ion batteries

Zero CO_2 emissions

Image of ammonia-fueled ship

2. Seawing Automated Kite System That Utilizes Wind Power Propulsion

- Seawing is a wind power propulsion system that utilizes wind force to gain traction by letting out a large kite that is attached to the bow of a vessel.
- In January 2024, we established OCEANICWING S.A.S. in France. This company, which has taken over the business of Airseas following its spinoff from Airbus, is focused on further enhancing and accelerating the development and commercialization of Seawing technology.
- Seawing is a new technology that can be installed on any type of vessel, including retrofitting existing ships, and we are considering deploying it on every kind of vessel.
- One of the features of Seawing is that it is a fully automatic system, with automation of everything from kite deployment to flight control and storage after use. The additional workload for crew members from kite operation is minimal, as the system can be controlled with simple button operations from the bridge. Another notable feature is its versatility, as it can be used with any type of ship, and can also be retrofitted onto existing vessels.
- Looking ahead, it is expected that use of alternative fuels in place of heavy oil will expand. The prices of these fuels are anticipated to be higher compared to heavy oil, but Seawing will demonstrate energy-saving effects even with these expensive fuels. Seawing installation thus offers value from the twin perspectives of energy conservation and fuel cost reduction.

LNG-fueled cape-size bulker

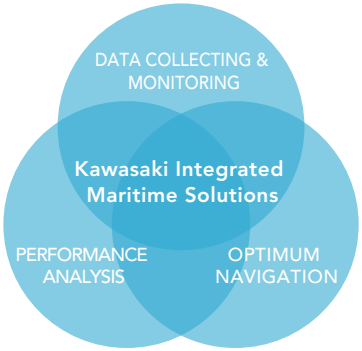
Expecting a reduction in CO_2 emissions of up to 20% over conventional vessels (* depends on the speed of the vessel, the route, and season).
Pursuing a 45 to 50% reduction in CO_2 emissions through the synergistic effect of installation on LNG-fueled vessels

3. Improvement of Operational Efficiency

Through Kawasaki Integrated Maritime Solutions (integrated vessel operation and performance management system), we collect navigation data from each vessel and use this to improve fuel consumption and reduce greenhouse gas emissions through AI analysis of big data. This system also features functions that assist with ship navigation optimization based on weather and maritime conditions and performance analysis models for each vessel to support safe, economical operations.

Kawasaki Integrated Maritime Solutions (Integrated vessel operation and performance management system)

- Collects vessel operation data in real time, including fuel consumption, output power, and ship speed, and pursues the improved operational management of the vessel by using an optimal navigation system that calculates safe and fuel-efficient recommended routes
- Recently, AI-driven data analytics technology has visualized performance degradation and external disturbances for each ship, allowing operational efficiency to be maintained and enhanced



Approximately 3% to 5% reduction in CO_2 emissions through installation of Kawasaki Integrated Maritime Solutions

- In October 2024, we decided to conduct a trial of a new satellite network service announced by Inmarsat Maritime, a Viasat group company, on our vessels. This service enables high-speed, always-on ship-to-shore communication to digitalize vessel operations and environmental response as well as improve crew welfare

4. Other Energy-Efficient and Decarbonization Technology and Equipment

CO_2 capture plant on a vessel

- World's first CO_2 capture plant on a vessel installed on coal carrier CORONA UTILITY as part of demonstration projects for Carbon Capture on the Ocean (CC-OCEAN), an offshore CO_2 capture and storage plant, together with Mitsubishi Shipbuilding Co., Ltd., and Nippon Kaiji Kyokai (ClassNK)
- CC-OCEAN project wins Marine Engineering of the Year (Doko Memorial Award) 2021

5. Raising Funds through Climate Transition

- Raised funds through Japan's first climate transition loan (purpose-specified finance) for the LNG-fueled car carrier, CENTURY HIGHWAY GREEN, in March 2021
- Raised approximately ¥110 billion through Japan's first transition-linked loan (TLL) (purpose-unspecified finance) in September 2021. Funds to be used to finance a range of environmental countermeasures aimed at decarbonization

6. Launch of Internal Carbon Pricing

- Full-scale internal launch of operation in April 2021. From fiscal 2023, this has been calculated with reference to an economic index that takes into account a future earnings contribution of ¥14,000 per ton of CO_2.
- Promote low-carbon transition and decarbonization projects by using this as an indicator for the evaluation of investment projects

Support the Development of a Low-Carbon and Carbon-Free Society

We will promote initiatives, such as supporting the offshore wind power business, participating in and creating a fuel supply network for the hydrogen and ammonia transportation business, and participating in the CO_2 transportation business, as a target for supporting the development of a low-carbon and carbon-free society set out in the "K" LINE Environmental Vision 2050, which aims to achieve net-zero GHG emissions by 2050.

1. Support Offshore Wind Power Business

- Establishment of "K" Line Wind Service, Ltd., together with Kawasaki Kinkai Kisen Kaisha, Ltd., and provision of offshore support vessels and transport vessels for offshore wind farm businesses
- Supporting of target set by the Japanese government for the introduction of offshore wind power generation of 30 gigawatts to 45 gigawatts by 2040 from an operational and transportation perspective

EK HAYATE

- In February 2024, KWS together with Japan Marine United Corporation, and Nihon Shipyard Co., Ltd. have been jointly granted Approval in Principle (AiP) from Nippon Kaiji Kyokai (ClassNK) for the design concept of the multi-functional floating offshore windfarm support vessel (MFSV).
- "K" Line, KWS, and EGS Survey Pte Ltd (EGS) established EK Geotechnical Survey LLC (EKGS) to service the offshore marine geo-survey sector. EKGS provides a variety of marine survey services such as offshore boring to meet demand for offshore ground surveying, which is expected to grow with the development of offshore wind power. In September 2024, EK HAYATE, an EKGS survey vessel, entered into service as a Japanese-flagged vessel capable of providing offshore drilling.

2. Participate in Transportation of Hydrogen and Ammonia, and Create Fuel Supply Network

- Acquired basic authorization for fuel supply ships and advance studies to make ammonia fuel supply for ships a reality in Singapore in May 2022
- Three Japanese shipping companies—Kawasaki Kisen Kaisha, Ltd., Mitsui O.S.K. Lines, Ltd., and Nippon Yusen Kabushiki Kaisha—along with Japan Suiso Energy, Ltd. (JSE)*1, agreed on capital participation through a third-party capital increase*2 in JSE Ocean, Ltd., a subsidiary of JSE. They will collaborate on the establishment of marine transportation of liquefied hydrogen (LH2) in a commercial-scale global hydrogen supply chain.

Concept image of a 160,000 m3 liquefied hydrogen carrier provided by Kawasaki Heavy Industries, Ltd.

*1 JSE was established in June 2021 with the main objectives of research, planning, management, and investment in the international supply chain of LH2.
*2 A method of raising capital by issuing new shares to a specific third party

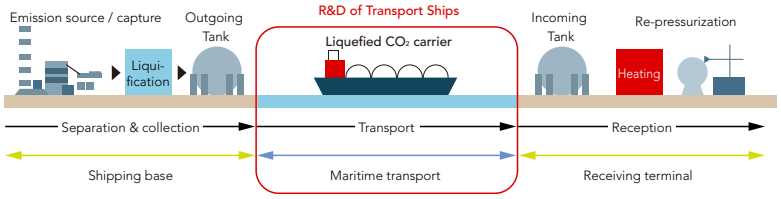
3. Participate in CO_2 Transportation Business

Demonstration Test Ship for Liquefied CO_2 Transportation Launched in March 2023

- The "K" LINE Group is participating in the CCUS*1 R&D and Demonstration Related Project / Large-scale CCUS Demonstration in Tomakomai / Demonstration Project on CO_2 Transportation, which NEDO*2 opened to applications in fiscal 2021. The "K" LINE Group, along with ENAA, NGL, and Ochanomizu University, will engage in research and development and prepare to carry out transportation tests.
- Using its extensive experience in ocean-going liquefied gas vessels, and experience in the demonstration testing of liquefied hydrogen transportation ships, "K" LINE carried out a safety assessment of transportation and loading for the liquefied CO_2 demonstration test ship and created an operation manual. By analyzing this test data, "K" LINE will contribute to the establishment of technologies for the safe operation of liquefied CO_2 ships.
- The vessel EXCOOL was delivered in November 2023.

*1 CCUS is an abbreviation for carbon capture, utilization, and storage. It refers to technologies for capturing, effectively utilizing, and storing emitted CO_2.
*2 NEDO is an abbreviation for the New Energy and Industrial Technology Development Organization. It is a national R&D institution that creates innovations through the development of technologies needed for a sustainable society.

In the NEDO demonstration test, we aim to systematize transportation know-how for low-temperature, low-pressure conditions



Note: The above diagram is from Ministry of Economy, Trade and Industry materials.

In December 2022, "K" LINE entered into long-term contracts with Northern Lights for two liquefied CO_2 vessels. —World's First Full-Scale CCS Project—

- Kawasaki Kisen Kaisha, Ltd. ("K" LINE) and Northern Lights JV DA have signed Bare Boat Charter and Time Charter contracts for two 7,500 m^3 liquefied CO_2 ships. The ships will be contribute to the world's first full-scale carbon dioxide capture and storage (CCS*3) value chain.

*3 Capture and storage of CO_2 emitted from industrial activities

- In February 2024, we signed Bare Boat Charter and Time Charter contracts for the third of four liquefied CO_2 vessels commissioned by Northern Lights.
- In November 2024, a ceremony was held at Dalian Shipbuilding Industry Co., Ltd. for the delivery of the newly built liquefied CO_2 vessel NORTHERN PIONEER to Northern Lights.
- The London-based subsidiary "K" LINE LNG Shipping (UK) Ltd. will undertake the management of these vessels, transporting liquefied CO_2 from CO_2 capture facilities in Norway to the Northern Lights receiving terminal in Øygarden, western Norway.


NORTHERN PIONEER

Northern Lights Project is dedicated to systematizing its know-how for medium-temperature, medium-pressure transportation.

4. Other Initiatives

- Looking into carbon credits, carbon offsets, etc.
- In September 2023, "K" LINE, along with Japan Petroleum Exploration Co., Ltd., and JGC Holdings Corporation, signed a basic agreement with PETRONAS CCS Ventures Sdn. Bhd., a subsidiary of Petroliam Nasional Berhad, the state-run energy company in Malaysia, to examine the commercialization of CCS in Malaysia.
- In September 2023, "K" LINE, Sumitomo Corporation, Toho Gas Co., Ltd., and Woodside Energy Ltd signed an agreement to conduct a feasibility study to establish a CCS value chain between Australia and Japan.
- In March 2024, "K" Line and NIPPON GAS LINE Co., Ltd. signed a joint venture agreement to establish a company that will offer liquefied CO_2 marine transportation, aimed at providing smooth, efficient marine transport services by offering integrated domestic and international liquified CO_2 marine transportation for CCS.
- To achieve large-scale international liquefied CO_2 marine transportation starting in 2028, we obtained Approval in Principle (AiP) from the American Bureau of Shipping (ABS) and ClassNK for the basic design of two types of low-pressure type liquefied CO_2 (LCO_2) carriers in September 2024, together with domestic shipyards, trading companies, and shipping companies.

Related Data

CO_2 Emissions of "K" LINE Group

(Tons)

Category		2019	2020	2021	2022	2023
Scope 1		10,325,224	9,202,613	6,583,464	6,649,847	6,550,995
Scope 2	Location basis	26,397	25,191	13,769	11,556	9,519
	Market basis	26,220	21,780	13,515	10,472	8,093
Scope 3		1,304,803	1,219,525	4,566,051	4,506,111	4,027,532

Notes: 1. The scope of aggregation has been revised from 2021. Vessels not under our operations are excluded from Scope 1 and container vessels are included for Scope 3.
2. In 2023, we reported 1,783 tons of biogenic CO_2 emissions from biofuel categorized in Outside of Scopes.

Third-Party Verification Statement of Greenhouse Gas (GHG) Emissions Data

Fuel Oil Consumption

(Tons)

Category	2019	2020	2021	2022	2023
Fuel oil	3,140,039	2,809,074	1,980,630	1,923,950	1,897,864

Note: The scope of aggregation has been revised from 2021. Vessels not under our operation are excluded.

Greenhouse Gas (GHG) Emissions per Deadweight Ton-Mile*

($g\text{-}CO_2$ / ton-mile)

Category	2019	2020	2021	2022	2023
All types of vessels	4.82	4.49	4.10	4.20	4.04

* Index for transporting one ton of cargo one nautical mile (1,852 meters), based on deadweight tonnage (DWT)
Note: The scope of aggregation has been revised from 2021. Vessels not under our operation are excluded.

Reducing "K" LINE's Impact on the Sea and Air

Approach

Basic Approach

Establishing and maintaining safe navigation is an unalterable mission in the marine transportation business. The "K" LINE Group states in its corporate principle and vision its aims "to provide safe and optimal services" and to contribute to society through safe vessel operations. At the same time, this means contributing to the reduction of the environmental impact on the oceans and atmosphere, and efforts to preserve biodiversity, especially in the oceans, is an important theme for our business activities. We will continue to strive to reduce the environmental impact of our vessel operations on the oceans and atmosphere by promoting initiatives, such as to eliminate oil pollution incidents, ballast water management, and SOx and NOx emissions reduction measures, and reducing the impact of vessel operations on marine mammals.

Disclosure Based on the TNFD Framework

Implementation of the LEAP Approach

As our business is dependent on natural capital, mainly from the ocean, not only climate change issues, but also biodiversity conservation efforts, especially in the ocean, are important themes for our business activities. Therefore, in order to assess and address environmental risks and nature-related economic impacts, we have adopted the LEAP approach based on TNFD guidance. By adopting the LEAP approach, we aim to strengthen our risk and opportunity management based on a more comprehensive understanding of climate change and natural capital related to our business, promote coexistence with nature, and proactively work towards building a sustainable future.

In November 2023, "K" LINE joined the Taskforce on Nature-related Financial Disclosures (TNFD) Forum*1.

Additionally in March 2024, we also registered as a "TNFD Adopter"*2.

*1 The TNFD is an international initiative aimed at building a framework for appropriate assessments and disclosure of risks and opportunities related to natural capital and biodiversity. The TNFD Forum is a group of stakeholders consisting of business enterprises, financial institution, research organization, and other entities. It was set up for the purpose of supporting discussion at the TNFD to help build a framework.
https://tnfd.global/engage/tnfd-forum

*2 TNFD Adopters are companies and organizations that have registered on the TNFD website their intention to disclose information in accordance with the TNFD recommendations and are required to do so for either FY2024 or FY2025.
https://tnfd.global/engate/tnfd-adopters/

TNFD Forum Member

Disclosure in accordance with TNFD Framework

Governance

Supervision by the Board of Directors and the Role of Management

Board of Directors

Amid global changes in values and behavior, as well as increasing awareness of the need to reduce the burden of climate change on the environment, "K" Line considers sustainability management a priority issue for enhancing corporate value over the medium- to long-term and discusses the issue as necessary at Board of Directors' meetings.

President & CEO

To strengthen management focused on the issue of reducing environmental impact, we have established the Corporate Sustainability Management Committee and the GHG Reduction Strategy Committee, chaired by the president & CEO.

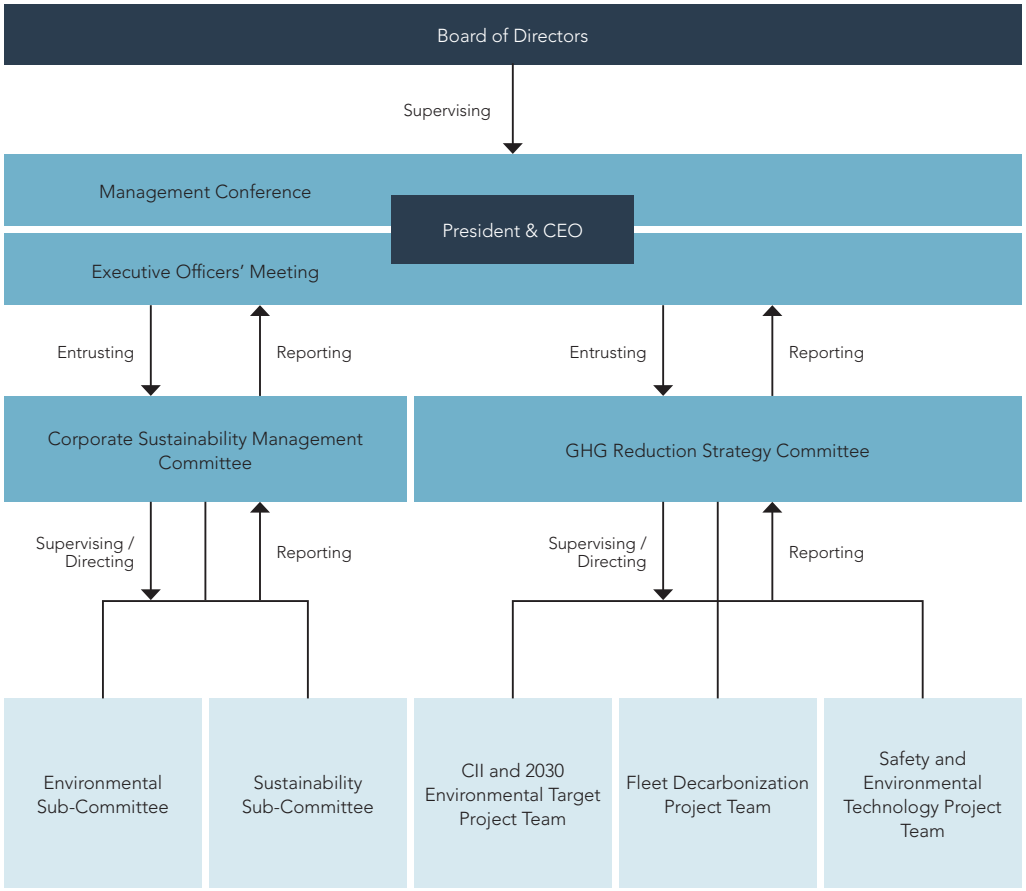
Corporate Sustainability Management Committee

The Corporate Sustainability Management Committee is enhancing corporate value by reviewing and formulating a promotion system for the "K" LINE Group's sustainability management. The general managers of each business group, who are heads of the relevant departments responsible for the material issues identified by the Group, are members of the Sustainability Sub-Committee, a subcommittee under the Corporate Sustainability Management Committee. The Sustainability Sub Committee monitors the implementation of initiatives related to materialities and regularly reports on their progress to the Corporate Sustainability Management Committee. Assessment and management of dependencies, impacts, risks and opportunities for ecosystem services are carried out under this structure, with final reporting of significant matters to the Board of Directors.

GHG Reduction Strategy Committee

The GHG Reduction Strategy Committee formulates strategies for reducing GHG emissions, with a focus on fuel conversion for the Group among urgent environmental issues. It also creates and implements comprehensive response strategies, as well as policies related to adopting technologies, such as equipment selection, and preparations for smooth operations. Under this governance structure, the "K" LINE Group advances effective sustainability management.

Sustainability Governance Structure



Respect for human rights with regard to stakeholders

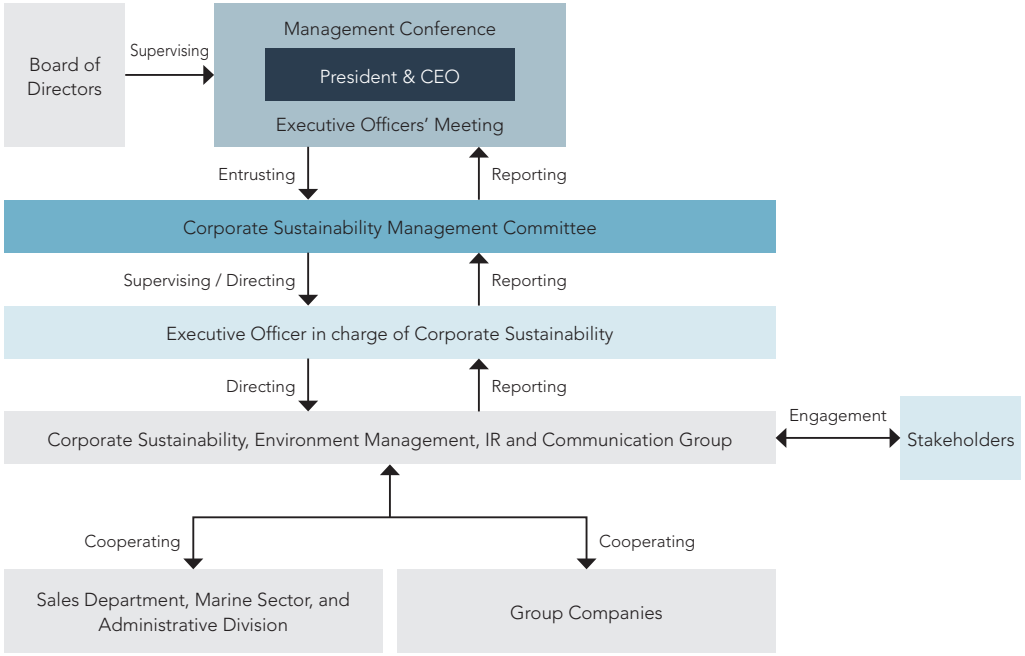
"K" The LINE Group has stated 'Respect for Human Rights' at the beginning of its 'Group Charter of Corporate Behavior' and signed the United Nations Global Compact in 2020, stating "to support and respect the protection of human rights" and "to make sure that we are not complicit in human rights abuses." We also expressed our support for labor principles such as "the elimination of forced and compulsory labor," "the effective abolition of child labor," and "the elimination of discrimination in respect of employment and occupation."

Based on the "K" LINE Group Basic Policy on Human Rights formulated in 2022, under the supervision of the Corporate Sustainability Management Committee and the direction of the executive officer responsible for corporate sustainability, the Corporate Sustainability, Environment Management, IR and Communication Group has become in charge of implementing human rights due diligence, including the drawing up of measures as well as analysis and assessment of human rights risks related to the business activities of the "K" LINE Group.

The Kawasaki Kisen Kaisha Group Basic Policy on Human Rights declares in section "3. Human Rights Due Diligence and Remedy" that the Group will establish a system to minimize negative impacts on human rights that encompasses all stakeholders inside and outside the Group.

The Kawasaki Kisen Kaisha Group Basic Policy on Human Rights

Human Rights Due Diligence System



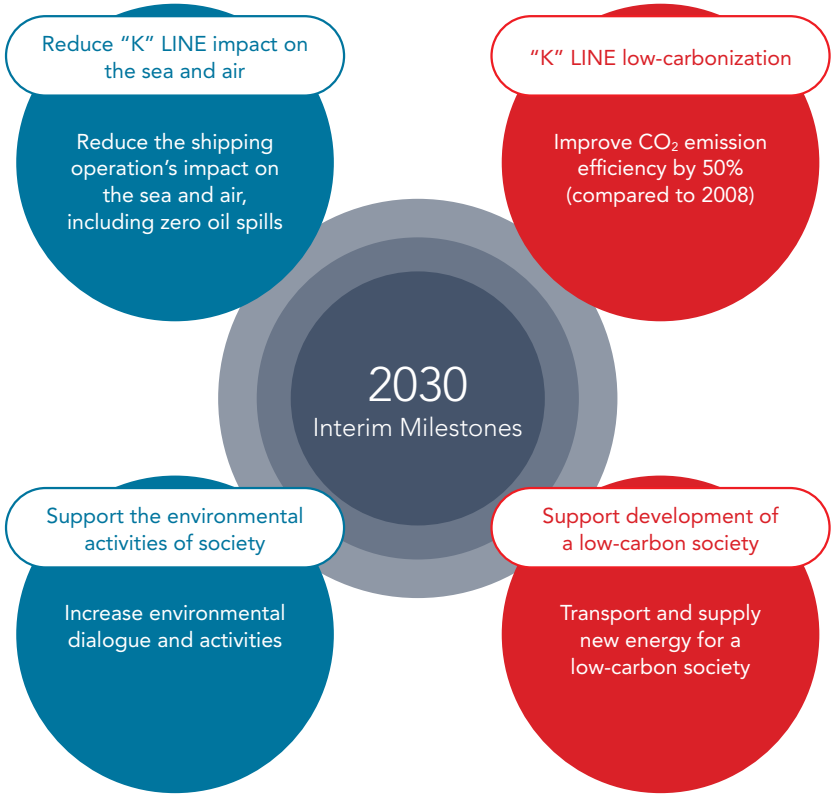
Reducing "K" LINE's Impact on the Sea and Air

Strategy

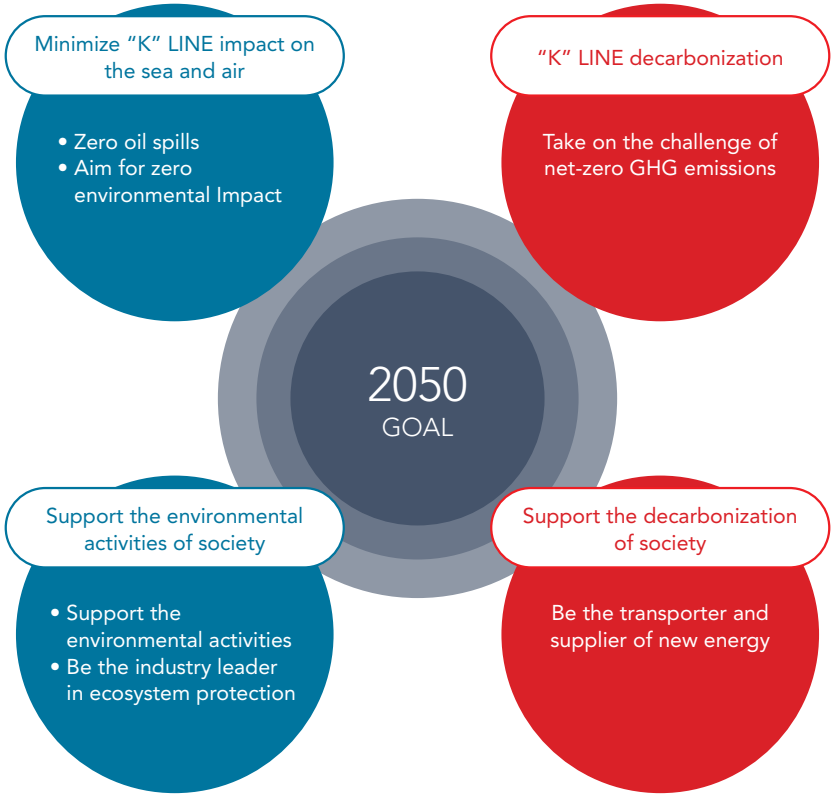
Sustainability Policy

"K" LINE Group has earned the trust of its customers by providing safe and reliable marine transportation and logistics services in the marine transportation industry, which is the foundation of the logistics infrastructure that supports global economic activities.

Among the various businesses that we operate, we focus on our main business, marine transportation, and furthermore, as part of our "K" LINE Environmental Vision 2050, we have disclosed our "2030 Interim Milestones" and "2050 Goals" to our stakeholders. Based on these goals, we have examined the issues to be analyzed.



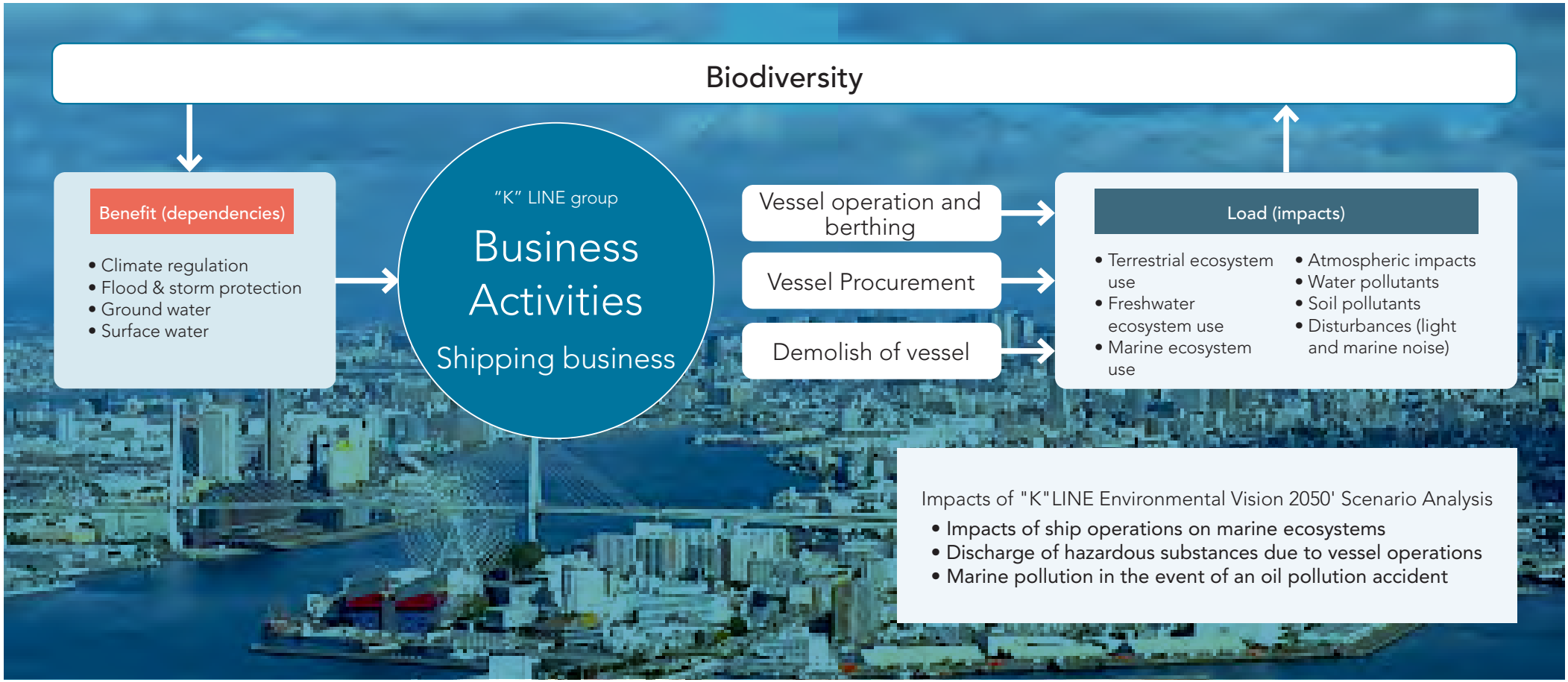
2030 Interim Milestones



2050 Goal

Reducing "K" LINE's Impact on the Sea and Air

Business Activities and Relationship with Nature



Based on the TNFD approach, the analysis focuses on "Locate" (region). Considering the characteristics of the marine transportation business, which covers all marine areas navigated by vessels, we evaluated that marine centered biodiversity measures without specifying marine areas would be the basic response.

Nature-related dependencies and impacts -1

Overview of LEAP Approach

Our steps to disclosure in accordance with the LEAP approach are as follows.

In the Locate phase, priority areas were identified in terms of ecosystem integrity, biodiversity importance, and water stress (mainly marine pollution), taking into account the footprint of our operations and its relationship to nature. In the Evaluate phase, we analyzed the impact of the items identified in ENCORE* as having high dependency/impact in the priority areas identified in the Locate phase. We then identify and evaluate the risks and opportunities in the Assess and Prepare phases, and revise our goals and strategies.

* ENCORE

A tool to help financial institutions better understand, assess, and integrate natural capital risk into their activities. Also used in LEAP analysis, as it can illustrate the degree of dependence and impact on ecosystems by sector.

Heatmap on dependence and impact

First, we used ENCORE to create heat maps to screen nature-related risks and opportunities in our shipping and port operations to understand dependencies and impacts in the sector.

Sector	Dependence (ecosystem services)							Impact (Key Factors of Impact)							
								Utilization			Pollution			Obstruction (noise, light)	Solid waste
	Climate control	Protection from floods and storms	Underground water	Surface water	Water quality	Maintaining water flow	Mass stabilization and erosion control	Marine ecosystem	Freshwater ecosystem	Terrestrial ecosystem	Atmosphere	Soil	Water quality		
Marine transport	H	H			L			H			H		H	H	
Ports, Ship recycling yards and services	M	M	L	H	L	M	M	H	H	H	H	H	H	H	M

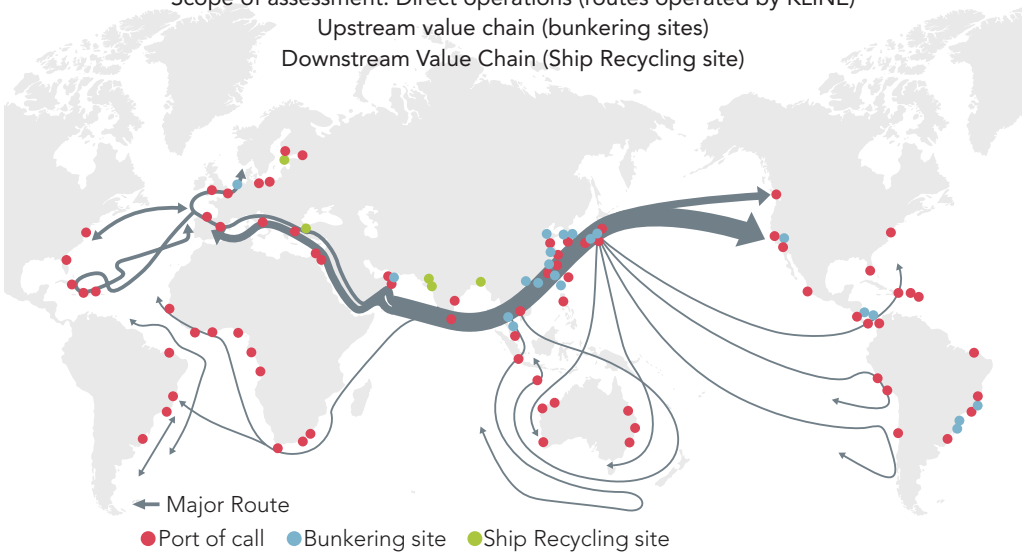
H: High Impact
M: Middle Impact
L: Low Impact

Reducing "K" LINE's Impact on the Sea and Air

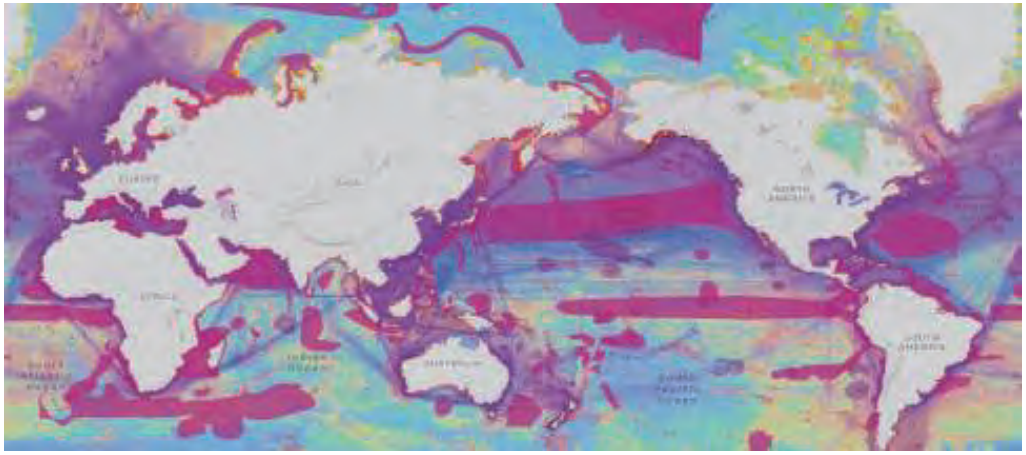
Nature-related dependencies and impacts -2

Our Business Footprint (Key Areas)

Scope of assessment: Direct operations (routes operated by KLINE)
Upstream value chain (bunkering sites)
Downstream Value Chain (Ship Recycling site)



Map of Sensitive Sea Areas



Source: UN Biodiversity Lab*

* UN Biodiversity Lab
An analytical tool to support the United Nations Biodiversity Laboratory's (UNBL) assessment and impact efforts for nature conservation and sustainable development.

Priority areas

We selected priority areas for each business site and operation location based on the frequency of vessel routes and port calls by our group (direct operations) and the upstream value chain (Bunkering sites) and downstream value chain (Ship Recycling sites). (Left figure: Our Business Footprint)
In addition, we used the UN Biodiversity Lab* to identify sensitive marine areas (areas of high biodiversity importance, low ecosystem integrity, and high water stress (sea water pollution). (Figure Below Left: Map of Sensitive Sea Areas) We also identified priority areas where our business activities have more contact with nature by comparing the results of the UN Biodiversity Lab, and set A) India, B) Southeast Asia, C) Japan, and D) California as main regions for our analysis.

Materiality location

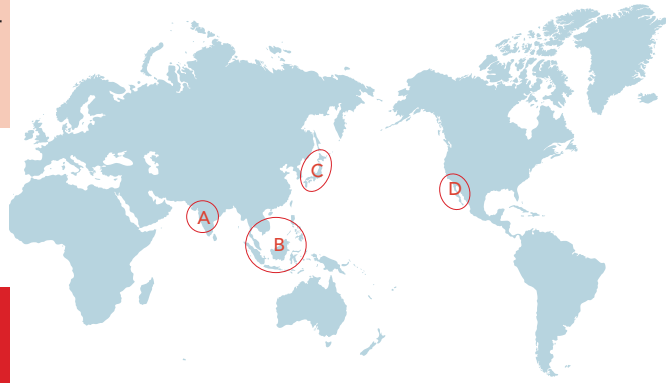
Business Footprint. List of regions prioritized (frequency of routes, number of locations, and business activities)

×

Sensitive location

Direct operations and locations where key value chain assets and activities come into contact with the nature of

- High biodiversity importance
- Low ecosystem integrity
- High water stress (seawater pollution)



A India
B Southeast Asia
C Japan
D California

Nature-related dependencies and impacts -3

Diagnosis of dependence and impact in priority areas

For the priority areas determined in the Locate phase, we evaluated the nature-related dependencies and impacts related to our business.

We used the ENCORE tool EXPLORE MAP to identify and deep dive into the data layers that were highly dependent on the results of the ENCORE assessment of sectoral dependencies and that were indicators of each ecosystem service. The same analysis was performed for impacts. The results are presented in the table below. Apart from the below, a list of endangered species in priority areas was also prepared by checking the IUCN Red List*.

* IUCN Red List

Provides a variety of information on species. It is an important indicator of the health of the world's biodiversity. A tool for informing business decision-making for policies that are essential to biodiversity conservation and the protection of essential natural resources.

	Area	Dependencies & Impacts
A	India	The region is highly dependent on marine ecosystems, freshwater ecosystems, and seasonal differences in precipitation, making it highly dependent on flooding events. Since we mainly conduct demolition in this region, it is important to take measures to prevent pollution runoff because of the potential impact on marine and freshwater ecosystems. Thorough environmental measures in the dismantling yards are needed.
B	Southeast Asia	The region has high GHG emissions and a high impact on marine ecosystems. As we often navigate to this region, we need to pay particular attention to measures for discharging hazardous substances from vessels and the impact on marine ecosystems caused by ballast water and oil spillage due to accidents must be paid particular attention.
C	Japan	The region can be said to have a high degree of impact on freshwater ecosystems, marine ecosystems, and water pollution. The marine ecosystems are particularly important for our marine-based business. The region is assessed as having a significant impact on marine ecosystems, especially for our marine-based business. It is necessary to pay attention to countermeasures against marine pollution caused by oil spills in ship accidents.
D	California	High GHG emissions and high impact on marine ecosystems, freshwater ecosystems, and water pollution. As we often sail to this region, we need to pay attention to countermeasures against hazardous substances from ships and marine pollution caused by oil spills in case of ship accidents. In addition, there is a whale sanctuary in the area, and since slow steaming is recommended in the area, it is necessary to pay attention to the disturbance to marine organisms.

Assessment of nature-related risks and opportunities -1

Analysis of nature-related risks

In the risk analysis, risks that were considered to have a significant impact were organized in terms of migration risk and physical risk.

As a result, we consolidated and identified four materialities that apply to all priority areas: oil pollution, air quality impacts, migration of marine organisms, and impacts on mammals.

Risk classification		Potential Risks and Impact on Business	Impact on Nature	Key Risks
Transition risk	Regulations and Laws	Vessel operations will increase GHG and SOx and NOx emissions, and stricter emissions regulations at the operator level will increase response costs.	Air pollution	Atmospheric Impacts
		The discharge of ballast water and the migration of organisms attached to the bottom of the vessel could affect the aquatic ecosystem of the area, leading to a collapse of the ecosystem of fishery resources and affecting the local fishing industry, which could result in the need for fisheries compensation. It could also create a threat to the conservation of endangered species and could result in lawsuits from the target countries and NGOs.	Biological Interference / Alteration	Migration of marine organisms
	Reputation	Increased emissions of SOx and NOx, which cause photochemical smog and acid rain, due to vessel operations will damage the company's social reputation among suppliers and stakeholders.	Air pollution	Atmospheric Impacts
		Ship operations can cause collisions with whales and other marine mammals that can be physically harmful to the organisms. In addition, undersea noise can harm communication between marine organisms, cause stress, and adversely affect the ecosystem. It may cause damage and stress to living organisms, and in the worst case, death, resulting in lawsuits from neighboring countries, NGOs, etc., and public notoriety.	Disturbance (light, noise)	Effects on Mammals
Physical risk	Chronic	The oil pollution associated with the dismantling needs to be addressed.	Water and soil contamination	Oil pollution
	Acute	Accidents in marine transportation cause oil pollution, which affects the marine ecosystem and reduces the catch of fishery resources, necessitating compensation to fishery-related businesses and neighboring countries.	Water and soil contamination	Oil pollution

Assessment of nature-related risks and opportunities -2

Assessment of nature-related opportunities

The TNFD defines nature-related opportunities as activities that produce positive outcomes for the organization and nature by creating positive impacts on nature or reducing negative impacts on nature. Based on this definition, we evaluated the importance of activities that create nature-related opportunities in the TNFD in each of the four materialities of "oil pollution control," "air quality impact mitigation," "marine life migration prevention," and "mammal impact mitigation".

1. Oil pollution

Risk Mitigation Management	Opportunity Management	Materiality assessment of risks and opportunities
Ship hull strengthening / Promotion of safe operation through the integrated vessel operation and performance management system "Kawasaki Integrated Maritime Solutions" / Installation of overflow pipes in fuel tanks / Electricity for deck equipment / Use of indirect cooling system (central cooling system) / Seafarer training / Strengthening of dialogue with port facility managers / Lobbying IMO (International Maritime Organization) on treaty aspects in collaboration with relevant ministries. * Financial impact is mitigated by marine insurance coverage	Promotion of safe operation through the integrated vessel operation and performance management system "Kawasaki Integrated Maritime Solutions" / Construction of a fleet compatible with new transport technologies / Environmental protection through enhanced support for green ship recycling	Nineteen endangered species inhabit in Southeast Asia, and oil pollution from ship accidents, etc., is of high importance because of its potentially devastating impact on the ecosystem. On the flip side of risk, the expansion of safe operation measures and oil pollution prevention measures that take these into account and the insistence on such measures are highly important as they provide an opportunity to contribute to the enhancement of reliability as a ship operator that takes biodiversity conservation into consideration.

[Target] Zero oil pollution accidents	Promotion of efforts to prevent oil pollution accidents: Strengthening of safe navigation measures, strengthening of hull strength, strengthening of all safety measures including human resource development, strengthening of green ship recycling measures, etc.

2. Atmospheric Impacts

Risk Mitigation Management	Opportunity Management	Materiality assessment of risks and opportunities
Initiatives to develop next-generation technologies to clear Tier III NOx emissions regulations / Participation in the Port of Bergen, Norway, Initiative to reduce NOx emissions from ships at berth by installing onshore power supply equipment / Awards for the Port of Los Angeles and Port of Long Beach, USA, Slow Steaming Program / Further expansion measures for LNG-fueled vessels / Introduction of LPG-fueled vessels / Introduction of zero emission vessels such as ammonia- and hydrogen-fueled vessels	Proactive biodiversity assessment and information disclosure ahead of competitors in TCFD scenario analysis and TNFD prototypes / Improvement of profitability by enhancing efficient operation through introduction of energy-saving equipment, etc./ Reduction of burden by commercialization of ships with new fuel and propulsion technologies that are low-carbon and decarbon	Highly important because GHG emission sources are an important aspect of the factors causing climate change and can affect marine ecosystems by increasing sea water temperature, affecting ocean currents, and leading to changes in weather phenomena. SOx and NOx emissions are highly important because they cause photochemical smog and acid rain, which may affect not only marine ecosystems but also human health. On the flip side of the risks, low-carbon ship operations that take these factors into account, compliance with regulations, and assertion of such are highly important because they provide an opportunity to contribute to the credibility of the ship operator as one that takes biodiversity conservation into account.

[Target] Reduction and minimization of impact on the surrounding environment	Promote initiatives to prevent air pollution and reduce GHG emissions: slow steaming, use of low-sulfur fuels, introduction of SOx scrubbers, introduction of NOx reduction equipment, etc.

Assessment of nature-related risks and opportunities -3

3. Marine organism migration

Risk Mitigation Management	Opportunity Management	Materiality assessment of risks and opportunities
Use of environmentally friendly paints: When marine organisms adhere to the hull of a ship, they increase the resistance of the hull, which not only increases fuel consumption and CO_2 emissions, but may also affect the ecosystem by bringing the adhered organisms to other waters. In order to reduce fuel consumption and prevent marine organisms from attaching to ships, we are actively promoting the use of low-friction paints, especially on new ships, in an effort to reduce CO_2 emissions and preserve biodiversity. In addition to conventional paints, low-friction paints are also being used on vessels in service in consideration of the environment	Marine ecosystem conservation through proper treatment of ballast water.	Twenty-six endangered marine species have been identified in India, 19 in Southeast Asia, 13 in waters around Japan, and 10 in waters around California. The disruption of ecosystems due to ballast water discharge and the movement of organisms attached to ship bottoms could pose a risk to endangered species and have a significant impact on catches. For these reasons, the risks associated with ballast water are of high importance. On the flip side of the risks, the expansion of ballast water measures that take these factors into account and the use of environmentally friendly paints and their claims are highly important because they provide an opportunity to contribute to the enhancement of reliability as a ship operator that takes biodiversity conservation into consideration.

[Target] Reduce and minimize impact on the surrounding environment	Promotion of efforts to prevent marine organisms from migrating: Maintain 100% ballast water treatment equipment installation rate, continue introduction of environmentally friendly paints, etc.

4. Impact on mammals

Risk Mitigation Management	Opportunity Management	Materiality assessment of risks and opportunities
Reduce the impact of vessel operations on marine mammals (in the 12-mile area along the California coast, vessels are required to operate at reduced speeds, contributing to reduced collision and noise risks) / Establish noise measurement methods and standards and ensure that they are below standards when built / Engage with governments, UN, NGOs, etc. for policy engagement / Install and research noise reduction devices	Reduction of the burden on marine mammals by vessel operations that contribute to impact reduction / Ecosystem conservation through more specific and effective measures regarding undersea noise, such as the impact of vessel noise on whales, etc.	Vessel operations may cause collisions with whales and other marine mammals, resulting in physical harm to the creatures. In addition, the degree of impact of noise on whales is high in the Mediterranean and California waters, and is of high importance to stakeholders, especially considering the presence of a whale sanctuary in the California waters. On the flip side of the risks, the expansion and advocacy of safe navigation measures, oil pollution prevention measures, and operational reviews that take these considerations into account is highly important because it provides an opportunity to contribute to improving the credibility of the company as a ship operator that takes biodiversity conservation into account.

[Target] Reduce and minimize impact on the surrounding environment	Reducing the impacts of vessel operations on marine mammals: Participation in California's slow steaming program to protect whales

Risk and Impact Management

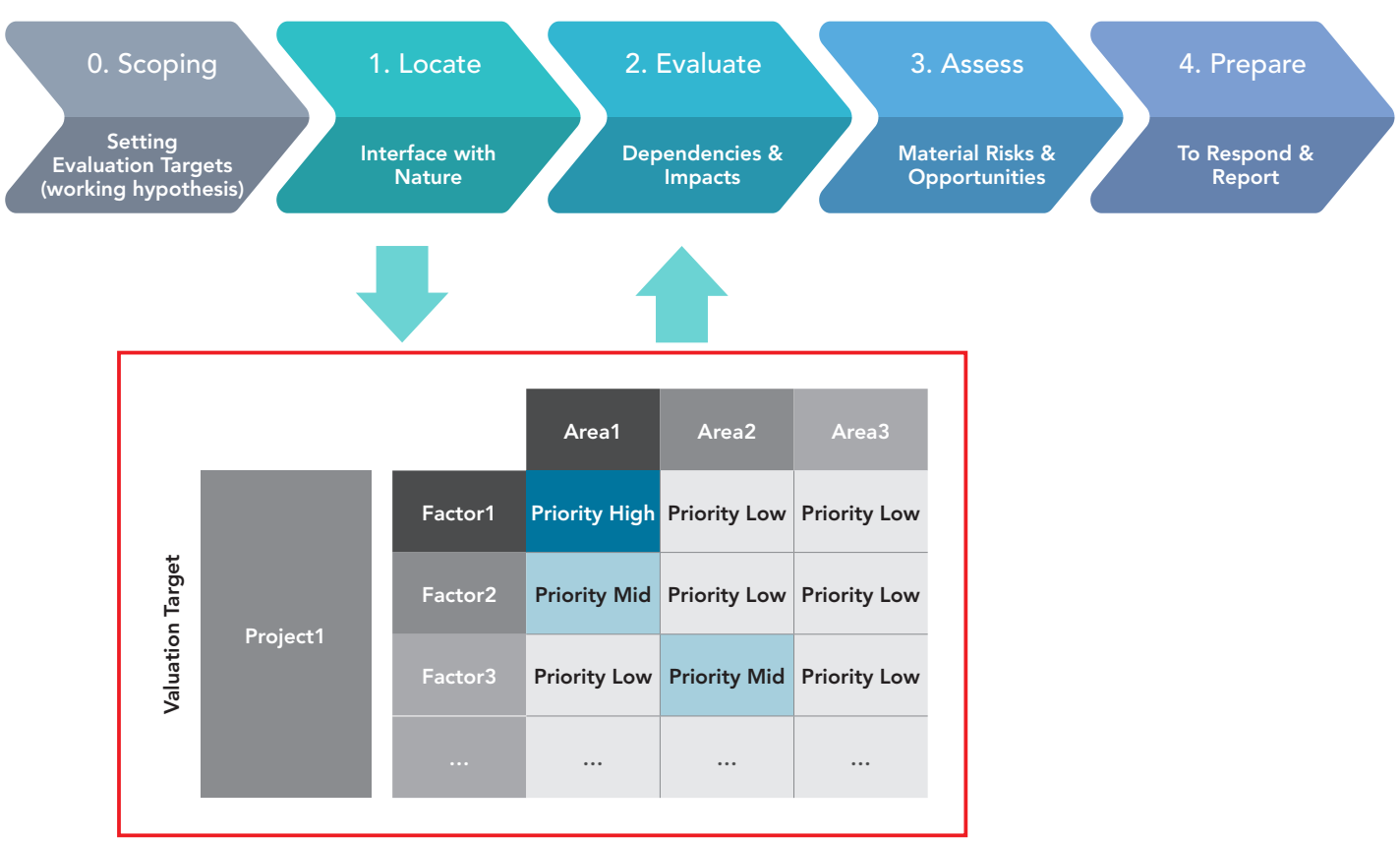
Identification and assessment process for nature-related risks

"K" LINE Group will follow the steps of the LEAP approach to identify and evaluate nature-related dependencies, impacts, risks, and opportunities based on TNFD disclosure recommendations.

In the Scoping phase, we develop a working hypothesis, and in the Locate phase, we identify the contact points between our operations and nature and identify priority areas in terms of ecosystem integrity and importance, and water stress (mainly the degree of marine pollution). In the Evaluate phase, we analyze whether the items identified as having a high degree of dependence and impact will have an impact on nature in the priority areas identified in the Locate phase. In the Evaluate phase, the business activities in the priority areas identified in the Locate phase are analyzed to determine the natural impacts of the business activities. In the Assess phase, risks and opportunities are identified and evaluated, and goals and strategies are reviewed in the Prepare phase.

Steps in the LEAP Approach

Source: The TNFD Nature-Related Risk and Opportunity Management and Disclosure Framework Beta 0.4



■ Assessment Team

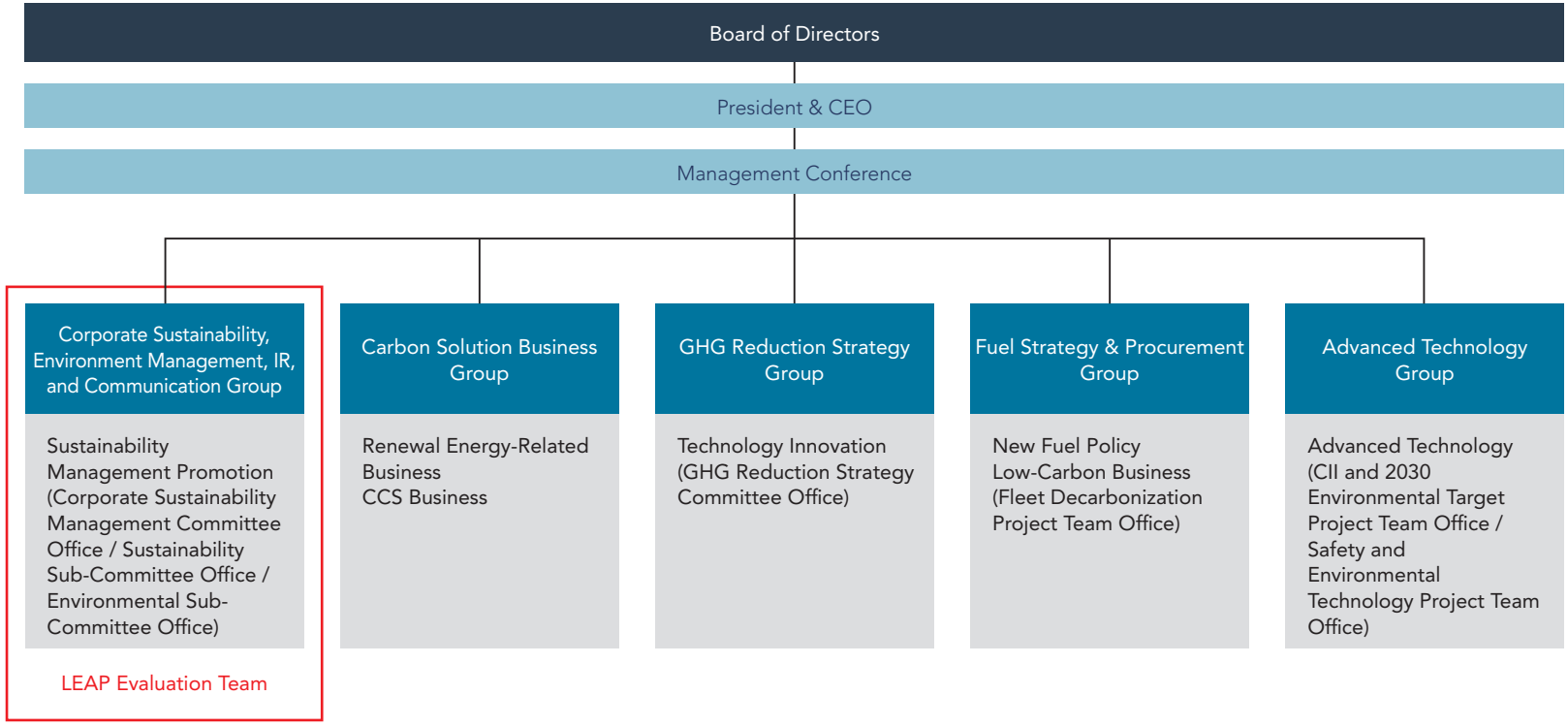
Corporate Sustainability and Environmental Management, IR and Communication Group

To strengthen our sustainability management structure, we have integrated the Environmental Management Group into the existing Sustainability Promotion, Investor Relations, and Public Relations Groups, bringing E (Environment), S (Society), and G (Governance) into one group. This group identifies and assesses nature-related dependencies, impacts, risks, and opportunities based on the LEAP approach.

Process for managing nature-related and other risks

"K" LINE Group has the following organizations responsible for the practical implementation of sustainability management promotion: Corporate Sustainability and Environment Management, IR and Communication Group, Carbon Solution Business Group, GHG Reduction Strategy Group, Fuel Strategy & Procurement Group, Advanced Technology Group. These groups are accelerating sustainability initiatives through practical operations.

Sustainability Sub-Committee reports to Corporate Sustainability Management Committee, a higher-level committee, on important matters in the LEAP evaluation of the Corporate Sustainability, Environment Management, IR and Communication Group. Finally, the President & CEO, who chairs the Sustainability Management Promotion Committee, submits the report to the Board of Directors for company-wide management.



Metrics and targets

Main responses to nature-related risks

"K" LINE Group, as a company that enhances 'natural capital,' mainly of the ocean, one of the six capitals of the "K" LINE Group, in order to achieve both our continuous development and contribution to a sustainable society, we are committed to the "K" LINE Environmental Vision 2050" and working to reduce the environmental impact of our company and society.

In the implementation of the LEAP approach, which is a part of our efforts, we were able to once again understand the relationship between our business activities and nature-related dependencies and impacts, and evaluate nature-related risks and opportunities, which will strengthen our risk management in terms of management strategy and confirm that we will continue with our current measures and other directions. The assessment of the risks and opportunities identified, and the goals of the project were also reviewed. Although the risks and targets identified include qualitative assessments, we will continue to monitor them while seeking and considering quantitative information in the future.

Key Risks	Correspondence details	Purpose	Targets and Indicators
Oil pollution	Promotion of efforts to prevent oil pollution accidents: Strengthening of safe navigation measures, strengthening of hull strength, strengthening of all safety measures including human resource development, strengthening of green ship recycling measures, etc.	Zero oil pollution accidents	Zero oil pollution accidents
Atmospheric impacts (GHG, SOx, NOx)	Promote initiatives to prevent air pollution and reduce GHG emissions: Slow steaming, use of low-sulfur fuels, introduction of SOx scrubbers, introduction of NOx reduction equipment, etc.	Reduction and minimization of impact on the surrounding environment	All ship types Emissions per ton-mile transported https://www.kline.co.jp/en/sustainability/environment/data.html
Prevention of marine organism migration	Promotion of efforts to prevent marine organisms from migrating: Installation of ballast water treatment equipment, introduction of environmentally friendly paints, etc.		Maintain 100% ballast water treatment system installation rate, continue introduction of environmentally friendly paints
Impact on mammals	Reducing the impacts of vessel operations on marine mammals: Participation in California's slow steaming program to protect whales		Continued participation in the slow steaming program in California, U.S.A.

Future Biodiversity Conservation Initiatives

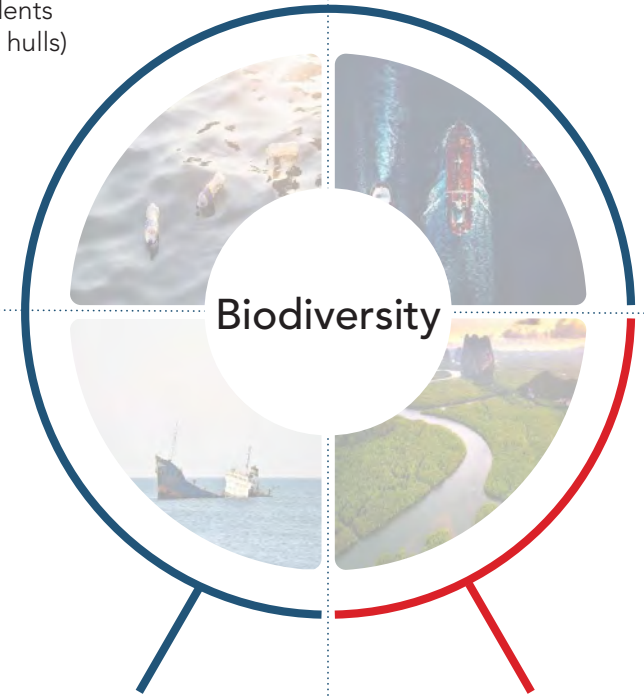
In order to reduce the environmental impact of our ship operations on the oceans and atmosphere to zero, we are already implementing various initiatives in each region from the viewpoint of biodiversity preservation as follows.

Avoidance and minimization of marine pollution

- Promote initiatives to eliminate oil pollution accidents (strengthen safe navigation measures, strengthen hulls)

Reduction / minimization of load on the surrounding environment

- Introduction of SOx / NOx reduction equipment
- Fuel use of environmentally friendly low-friction paints
- Appropriate treatment of ballast water
- Participation in the U.S. state of California's slow steaming program to protect whales



Reclamation and conversion of resources for recycling

- Dispatch employees to Ship Recycling's dismantling yard to conduct independent assessments, including prevention of pollutant spills
- Minimizing waste and promoting recycling related to marine and land-based operation

Restoring and preserving the environment and ecosystems through cooperation and collaboration with society

- Joint research on plastic waste with Tokyo University of Marine Science and Technology
- Preserving an undeveloped woodland near a village conservation and coastal cleanup activities in collaboration with the Chiba University Environmental ISO Student Committee

Major Biodiversity Conservation Initiatives

Case 1: Safety in Navigation and Cargo Operations Based on "Human Capabilities"

We are building a solid system for safety in navigation with safety and quality management that leverages human capabilities—the strength of the "K" LINE Group—complemented by advanced digital technologies.

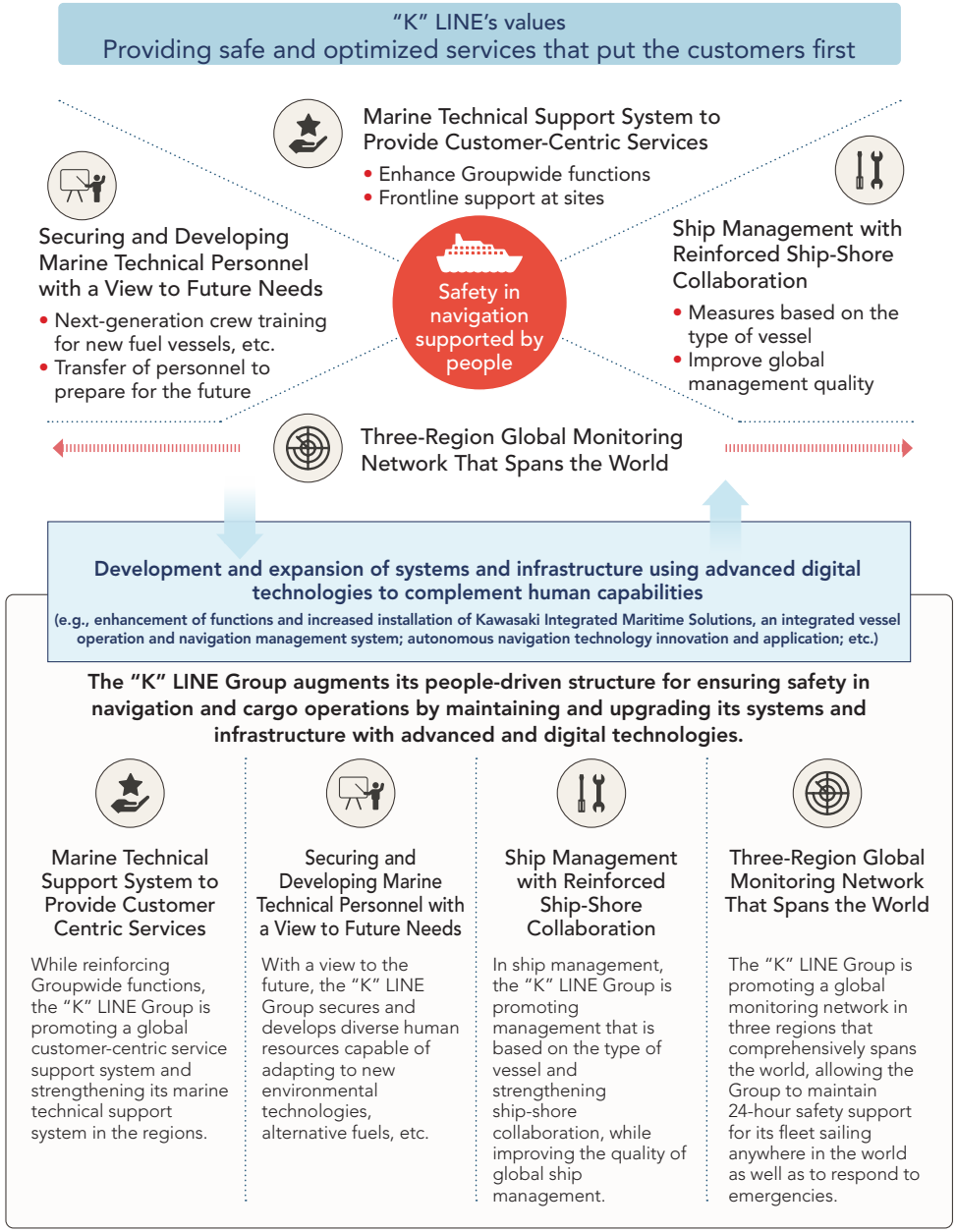
Cutting-Edge Digital Technologies That Complement Human Capabilities

- K-Assist Project

The K-Assist Project is a technology development project related to automated ship operation. It covers three fields: support for sentry duty and ship navigation, support for safe berthing and unberthing, and support for engine plant operations. The Advanced Safety Berthing/ Unberthing Assistance System automatically detects any outside force applied to the hull when entering or leaving a port. Use of a ship motion model to predict ships' future positions with high accuracy is expected to enable safer ship maneuvering in the future. The amount of tensile force applied to mooring lines during berthing varies greatly based on cargo loading status, and in the past, it was not possible to attain a quantitative measurement of that tensile force while aboard the ship. To address this, we jointly developed and installed the Tension Monitoring System for Mooring Line that enables the digital visualization of tensile force applied to mooring lines to improve safety relative to the past while simultaneously lowering crew member workload.

- Optimum Weather Routing System

Climate change in recent years has resulted in an uptick in typhoons, explosive cyclogenesis ("weather bombs"), and other weather events even out of season, with more problems being caused by stormy weather. To avoid such problems and ensure safe ship operation, it is important to set up proper routes based on weather and ocean condition forecasts. We support the safe and economical operation of ships using the KAWASAKI Integrated Maritime Solutions Navigating System for Optimal Navigation, which makes route recommendations based on operational performance models for each vessel with weather forecast.



Case 2: Prevent Air Pollution through Slow-Speed Navigation

Participation in the Port of Los Angeles and Port of Long Beach slow steaming program in the U.S.

- The US ports of Long Beach and Los Angeles have implemented programs requiring vessels to voluntarily slow their steaming speeds within designated waters to prevent coastal air pollution.

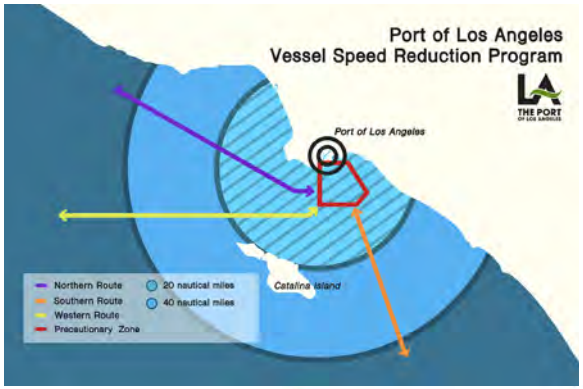
- Kawasaki Kisen Kaisha, Ltd. ("K" LINE) is honored to have received recognition from the port authorities of Long Beach and Los Angeles, both in the United States, for recording high level of compliance throughout 2023 with voluntary speed reduction by "K" LINE's car carriers and dry bulk carriers in the two ports' respective programs in order to reduce coastal air pollution by slowing ships within the designated water.

- Ships participating in the program are asked to comply with speed limit of 12 knots within 40 miles (about 74 kilometers) from the coast of each port in order to reduce emissions of exhaust gases containing nitrogen oxide (NOx), sulfur oxide (SOx), particulate matter (PM) as well as CO_2 that cause (global) warming from ships.

- We have participated since the inception of the program in 2005, and as a result of this year's achievement, "K" LINE has been honored to receive this award from the Port of Long Beach for 19th consecutive years and from the Port of Los Angeles for 16th consecutive years since 2008 when their awards were commenced, respectively.

Unique decelerated navigation in Ise Bay and Mikawa Bay in Japan

- We voluntarily reduce the speed of our car carriers to 12 knots or less when navigating in Ise Bay and Mikawa Bay. This enables us to reduce the impact of ship navigation on the surrounding atmospheric environment, both on land and at sea. We also control emission of PM (including soot) while ships are in harbor by removing soot from the boiler before entering the ports. After entering the ports, we assure that the load on the electricity generator is appropriate to maintain a good combustion state.

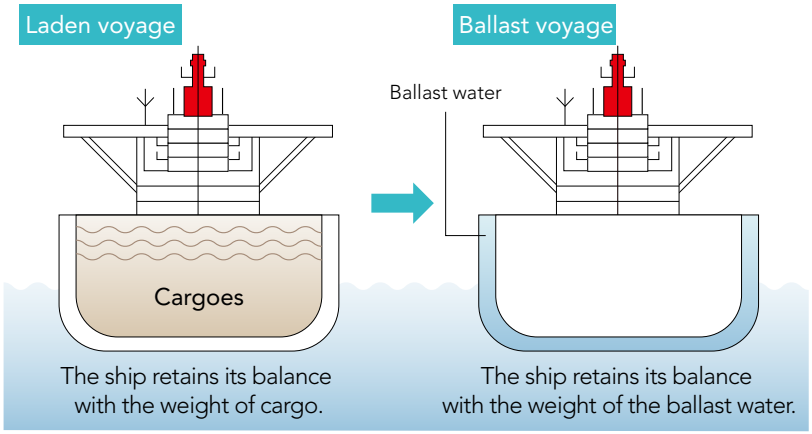


Case 3: Appropriate treatment of ballast water

Vessels store seawater (ballast water) to keep the hull stable at sea.

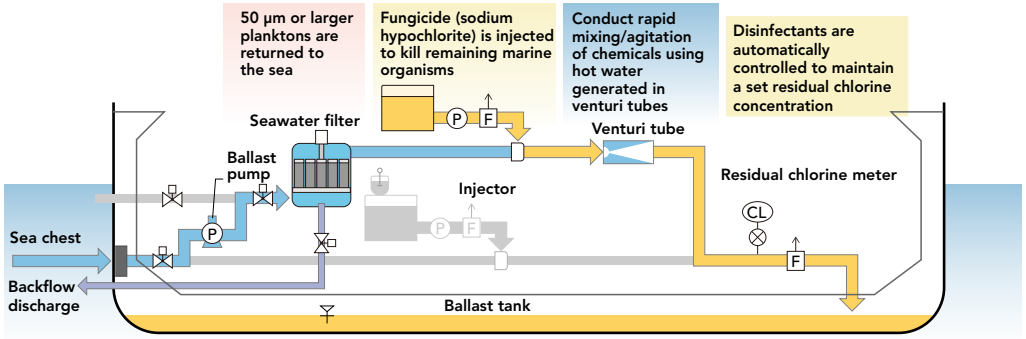
- In 2017, the International Maritime Organization (IMO) has entered into force the "International Convention for the Control and Management of Ships' Ballast Water and Sediments" because the discharge of ballast water from vessels can affect marine ecosystems.
- Specifically, it requires the installation of a treatment system (BWMS: Ballast Water Management System) for sterilizing ballast water.
- We will continue to operate vessels that are cleared of regulations and strive to protect biodiversity so that marine life and ecosystems as they originally are.

Ballast water



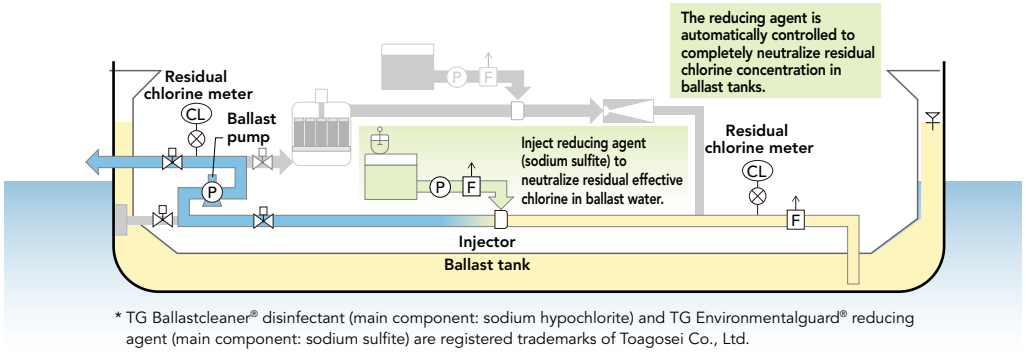
While ballast water is being fed to the ship (discharging cargo)

1. While ballast water is being fed into the ship, precision filters (seawater filters) are used to return as many marine organisms as possible to their original habitats.
2. Small planktons and bacteria such as coli bacteria contained in the filtered water are eliminated using an appropriate fungicide and through mixture and agitation in a Venturi tube.



While ballast water is being discharged (loading cargo)

1. The tiny amount of residual fungicide in the treated ballast water is neutralized and detoxified with a reducing agent before the water is discharged to the sea.



* TG Ballastcleaner® disinfectant (main component: sodium hypochlorite) and TG Environmentalguard® reducing agent (main component: sodium sulfite) are registered trademarks of Toagosei Co., Ltd.

Related Data

CO_2, SOx, and NOx Emissions from Vessels

(Tons)

	2019	2020	2021	2022	2023
CO_2 emissions	9,799,932	8,761,756	6,174,863	5,997,064	5,914,354
SOx emissions	129,786	35,983	30,166	29,272	29,963
NOx emissions	202,678	181,429	117,864	118,264	117,089

Note: The scope of aggregation has been revised from 2021. Vessels not under our operation are excluded.

SOx and NOx Emissions per Deadweight Ton-Mile

	Unit	2019	2020	2021	2022	2023
SOx emissions	g-SOx / ton-mile	0.067	0.022	0.020	0.020	0.020
NOx emissions	g-SOx / ton-mile	0.097	0.089	0.078	0.082	0.080

Other Environmental Data of "K" LINE's Vessels

Waste Generation, Etc. (All Types of Vessels)

(m^3 / ship-month)

	2019	2020	2021	2022	2023
Bilge	4.15	4.02	4.04	4.72	5.93
Sludge*	3.9	4.0	2.0	2.2	2.4
Garbage on board	3.5	3.5	5.4	3.7	4.5

* The residue left over after cleaning and processing fuel and lubricating oil

Gray Water from "K" LINE Vessels (Owned Ships)

(Metric tons)

	2019	2020	2021	2022	2023
All types of vessels (owned ships)	82,485.0	64,421.6	74,929.9	88,450.9	99,602.9

Supporting the Environmental Activities of Society

Approach

Basic Principle

To contribute to the realization of a sustainable future, we are reinforcing collaboration among industry, academia, and government, including the central government, local governments, and universities, to carry out various environmental preservation initiatives.

Key Targets

- Promote volunteer environmental protection activities
- Increase the capability to accommodate green ship recycling
- Participate in the collection and study of marine plastic pollution

Initiatives

Promotion of Volunteer Environmental Protection Activities

We engage in various activities to raise the environmental consciousness of our employees further, including initiatives to protect biodiversity and create pleasing landscapes, such as collaborating with the NPO Chiba University Students Committee for Environmental Management System to protect forests and clean up business sites and seashores. We are providing support for a project to regenerate seaweed beds by Moaibu.

Reinforcement of Response to Green Ship Recycling

We are working on ship dismantling and resource recycling with full consideration for environmental preservation and occupational health and safety. Various types of metal are used in ships. The metals collected after dismantling ships are valuable resources and can be recycled into new products and used for new services to support local lives and the development of employment. The "K" LINE Group strives for responsible dismantling and recycling of resources also in the ship scrapping stage.

In 2017, "K" LINE established the company rules "Operating Rules for Ship Recycling" and "Detailed Operating Rules for Ship Recycling" to ensure that the dismantling work is carried out in consideration of environmental protection and occupational safety and health.

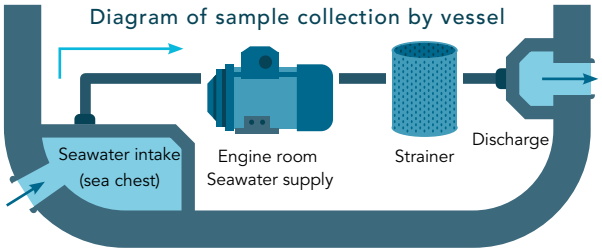
Dismantling of vessels owned by our company requires to be conducted only at our certified yards selected according to our own evaluation criteria in consideration of the conformity requirements of the HKC and our own perspective in addition. The evaluation is conducted at on-site audit in cooperation with our local supervisors.

When dismantling a ship, we inspect the dismantling yard and conduct an environmental impact assessment using our own checklist to ensure that the work is performed safely, that substances and other materials that may affect the human body and the environment are collected, and that the surrounding environment is not affected.

Participation in Collection of and Research on Marine Plastic Waste

We are conducting joint research on marine plastic debris with Tokyo University of Marine Science and Technology, a national university corporation. The joint research will evaluate how much plastic waste can be collected from common seawater intake that is filtered by ships on voyages. Specifically, "K" LINE vessels will take samples from the seawater intake line with a strainer while the ship is running, and then the university will collect plastic particles from the samples and analyze their material, size, and other properties. The aim for this project is that it will lead to further research, such as the collection of microplastics in the open sea using ocean-going vessels and the establishment of a system for monitoring the density of microplastics in specific areas.

Proposed method for sample collection to be carried out by "K" LINE vessels



Related Data

Office Environmental Data

Electricity

(kWh)

	2019	2020	2021	2022	2023
Annual consumption	789,971	736,212	708,811	907,221	890,815
Annual consumption per person	860	836	793	823	749

Office Paper

(Sheets)

	2019	2020	2021	2022	2023
Annual consumption	3,852,224	2,178,527	2,157,950	2,073,834	2,182,418
Annual consumption per person	4,196	2,473	2,414	1,882	1,836

Water

(m^3)

	2019	2020	2021	2022	2023
Annual consumption	509	318	313	403	430
Annual consumption per person	0.75	0.50	0.48	0.58	0.56

Total Quantity of Recycling

Ship Recycling

(Tons)

	2019	2020	2021	2022	2023
All types of vessels	13,774	114,055	0	21,695	0

Waste

Waste

(Tons)

	2019	2020	2021	2022	2023
All offices	823	571	420	570	528

	2019	2020	2021	2022	2023
All types of vessels	7,477	6,361	5,192	6,858	6,623