



MARINE ENVIRONMENTAL MANAGEMENT REPORT 2026



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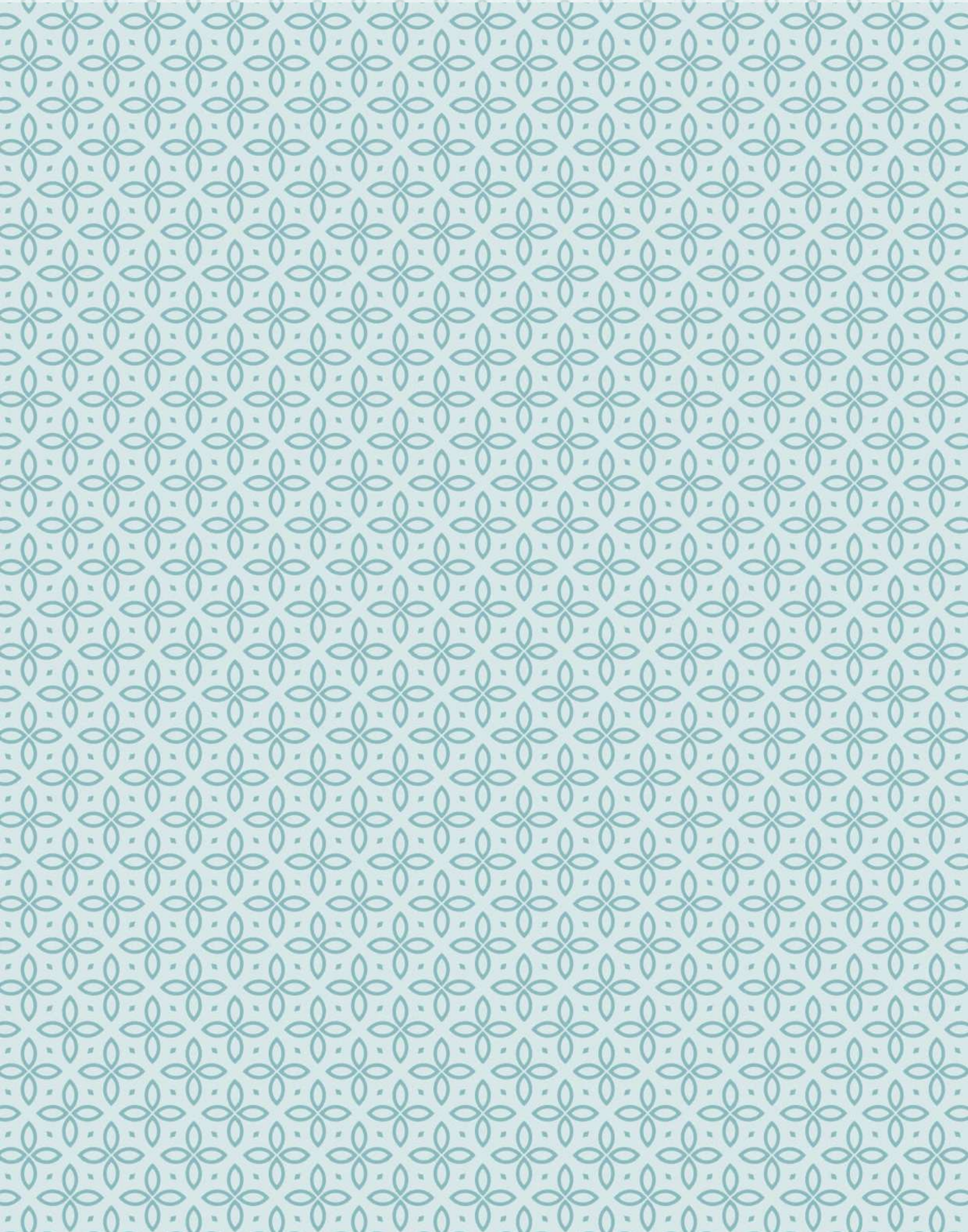
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Directorate General of Maritime Administration conveys its regard for the invaluable support of the Indian Register of Shipping and the Institute of Marine Engineers (India) in compiling this report.



Message from the Director General of Maritime Administration



Sustainable development is no longer only a global aspiration; it is an essential foundation for the future of economic growth, social progress, and environmental stewardship. Since the adoption of the 2015 United Nations framework on sustainable development, the Sustainable Development Goals (SDGs) have provided a common direction for nations to pursue growth that is both inclusive and environmentally responsible. India has embraced this vision through transformative initiatives such as Digital India, strengthening the use of technology, data and digital governance across sectors, including maritime administration.

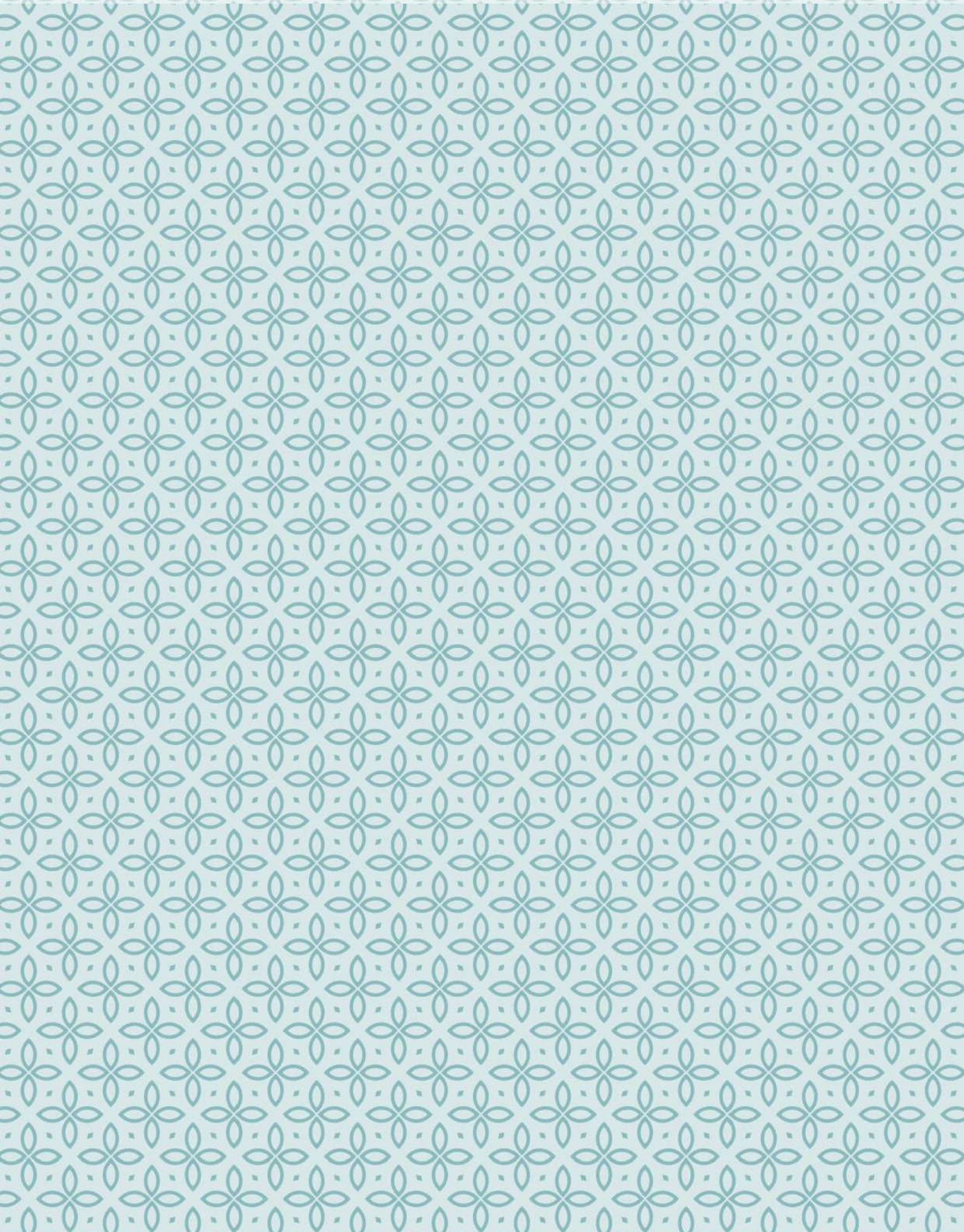
The maritime sector has a critical role to play in this transition. Recognising this, the Directorate General of Maritime Administration (DGMA) has progressively strengthened India's digital and regulatory framework for sustainable shipping. What began as the "Swachh Sagar" platform, launched in 2018 to monitor port reception facilities and ship-generated waste, has evolved into the Indian Maritime Environmental Information Management Portal, a comprehensive platform integrating information on waste management, fuel consumption and emissions reporting, ballast water, bunker suppliers, RO audits, and single-use plastics. This evolution reflects our commitment to using data as an instrument of environmental governance, regulatory oversight and continuous improvement.

The data emerging from this platform provides valuable evidence of progress across the maritime sector, including improved utilisation of port reception facilities, reduction in single-use plastics on ships visiting Indian ports, and strengthened monitoring of carbon emissions. More importantly, it enables us to identify areas where further action is required. These insights contribute to national initiatives such as the Harit Sagar – Green Port Guidelines, Maritime India Vision 2030, and the emerging Maritime Vision 2047, while also strengthening India's engagement with the International Maritime Organization (IMO) in shaping future regulatory developments.

This Maritime Environmental Management Report marks an important step in consolidating, analysing and presenting India's maritime environmental performance through a data-driven lens. It provides an evidence base to assess progress, identify areas for improvement and support informed decision-making across the maritime ecosystem. The transition to sustainable shipping is a collective endeavour, requiring continued commitment to stronger regulation, digitalisation, data-driven decision-making and collaboration. As India advances towards a cleaner and more sustainable maritime future, the Directorate General of Maritime Administration remains committed to enabling this transition and strengthening India's contribution to sustainable global trade.

Shri. Shyam Jagannathan, IAS

Director General of Maritime Administration &
Additional Secretary to the Government of India



Message from the Chief Surveyor



The 2025 data presents a more comprehensive picture of the environmental performance of India's maritime sector and the transition underway towards cleaner and more efficient shipping. With the evolution of the Swachh Sagar platform into the Indian Maritime Environmental Information Management Portal, the Indian Maritime Administration is increasingly able to bring together environmental data across emissions, fuel consumption, waste management, ballast water and other areas of maritime environmental performance.

The findings of this report demonstrate measurable movement in several areas. Between 2019 and 2025, carbon emissions per GT decreased by approximately 6.25% , while emissions per deadweight tonne decreased by approximately 5.8%.

The report also records significant engagement with measures to reduce single-use plastics, while 2025 saw no inadequacies relating to port reception facilities reported through the IMO GISIS portal—the first such achievement in five years.

At the same time, the data points clearly to where further attention is required. Coastal shipping accounts for 37.5% of total emissions from Indian ships when the relevant coastal categories are considered, while the report identifies significant variation in the utilisation of port reception facilities. These findings are important not only as measures of performance, but as indicators of where targeted interventions and operational improvements can deliver greater environmental gains.

The transition will require action across the maritime ecosystem. National initiatives including the National Green Hydrogen Mission, Green Tug Transition Programme and Harit Sagar – Green Port Guidelines,, together with the implementation of Energy Efficiency Existing Ship Index (EEXI) and Carbon Intensity Indicator (CII) requirements, biofuel adoption and green coastal shipping initiatives, are creating the framework for this transition.

This report is intended to strengthen that process by placing reliable data at the centre of environmental decision-making. I encourage all stakeholders to use these findings to identify gaps, share effective practices and translate environmental commitments into measurable improvements. The findings of this report provide a clear basis for continued action measuring performance, identifying areas for improvement, and translating evidence into meaningful outcomes. Through sustained collaboration and environmental stewardship, India

can continue to strengthen its contribution to the global transition towards sustainable maritime trade.

Shri KM Rao

Chief Surveyor-cum-Addl. Director General (Engineering)
Directorate General of Maritime Administration
Ministry of Ports, Shipping and Waterways
Government of India

**CO₂ Emissions
from Indian
Shipping and
Initiatives for
Green Shipping**

Preface: Carbon Emission from Indian Ships

In order to develop policies and regulations for CO₂ emissions from international shipping, it was imperative to have an inventory of CO₂ emissions from ships (which directly depends on the fuel consumption) and with this intention the IMO Data Collection System was started.

1. The data collection for IMO's fuel data collection system (DCS) started on 1 January 2019. DCS aggregates data such as fuel consumption, distance travelled and hours underway for individual ships of 5,000 GT and above.
2. To ensure compliance with IMO DCS:
 - i. Ships of 5,000 GT and above have to submit annual reports on fuel consumption, distance travelled and hours underway to their Administration, according to the Methodology set out in Part II of the Ship Energy Efficiency Monitoring Plan (SEEMP).
 - ii. Aggregated data is reported to a ship's Flag State/RO after the end of each calendar year, which is verified for compliance with MARPOL Annex VI and IMO guidelines before issuing a Statement of Compliance to the ship.
 - iii. Administrations submit aggregated data to IMO for anonymized publication.
3. To ensure that data from all ships are collected at one place, the Directorate has ensured the following:
 - i. Ships of 5,000 GT & above (except those Certified as RSV/ICV) can report annual aggregated data to any Recognized Organization, which after verification can issue a Statement of Compliance, but the reporting of data to IMO is only delegated to IRS.
 - ii. Ships of 5,000 GT & above and certified as RSV/ICV and ships of less than 5000 GT are required to report their annual aggregated fuel consumption data to IRS without any need for verification and issuance of any statement of compliance.
4. The Directorate reviews the aggregated data and publishes the annual fuel consumption data analysis report and, in that series, this is the report based on data collected for the calendar year 2025.

Key Statistics of CO₂ emissions from Indian Shipping:

5. The information gathered demonstrates the following key information about carbon emissions from Indian Shipping:
 - i. There is consistently about **20% of total emissions** from ships less than 5,000 GT and those of 5,000 GT & above and certified as RSV or ICV.
 - ii. Considering that: (a) all Ships of less than 5,000 GT on Coastal Run, (b) all Ships certified as RSV or ICV on Coastal Run and (c) 195 Ships of 5,000 GT and above on Foreign Run, the emissions from Coastal run contributes to about 18.1% + 19.4% = 37.5% of total emissions from Indian Ships.
 - iii. The total emissions from Indian shipping is less than 6 Million MT and that from those on International voyages is about 3.4 Million MT. According to IMO 4th GHG Study, International

shipping emitted 740 million MT of CO₂ emissions and based on this data, Indian international shipping contribution is about 0.4%.

Size based analysis

6. The review of data based per GT and per deadweight provides following information:
 - i. CO₂ Emission per Ship (Million Tonnes/Ship) has remained at about 0.006.
 - ii. Annual carbon emissions in Metric-Tons/GT has reduced marginally to 0.48. When compared to 2019 have reduced from 0.512 to 0.48, that is, about 6.25%.
 - iii. The Annual Carbon Emissions per Deadweight (Tons of Carbon Emissions /Deadweight) is about 0.29. When compared to 2019 it has reduced from 0.308 to 0.29
7. The above all indicates that there is no much change in design energy efficiency, usage of alternate fuels or shore power supply to ships or shore power after 2020 and a small decrease is due to a very small number of ships using biofuels and being supplied by shore power supply.

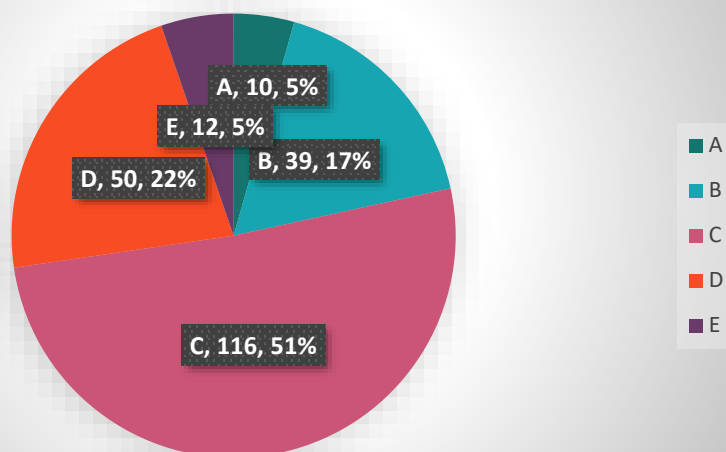
Ships of 5000 GT & above except those Certified as RSV or ICV

8. These sizes of ships contribute to about 80% of total emissions from Indian ships.
9. Though tankers and bulk carriers contribute to about 36.4% and 18.4% of total carbon emissions from Ships of 5,000 GT & above respectively, their efficiency can be gauged from the fact that they emit on an average about 0.2 Tons carbon per deadweight compared to 0.61 by container, 0.46 by gas carriers and 0.35 by general cargo ships.
10. **Operational Carbon Intensity**
 - i. Starting in 2024, the Annual Attained CII must be reported based on the DCS data of the previous year to the DCS verifier. The CII rating (A to E) is assigned and mentioned on the Statement of Compliance (SoC) - Ship Fuel Oil Consumption Reporting and Operational CII Rating. While the rating is assigned annually based on the preceding year's fuel consumption data, the SOC is required to be kept on board for five years.
 - ii. A comparison of the average AER of various ship types with the corresponding figures reported in the IMO 4th GHG Study provides an indication of the operational carbon intensity of Indian ships:

Ship Type	Vessel-based Average AER in 2018 from IMO 4 th GHG Study	Vessel-based AER of Indian Ships
Bulk Carrier	3.8	4.97
Tanker	4.5	7.05
Container	9.5	10.34
General Cargo	14.4	16.51
Gas Carrier	11.5	8.46

An assessment has been done based on the data reported for 2025 and the projected CII Ratings are below-

CII Ratings 2025 Data



Ships less than 5000 GT

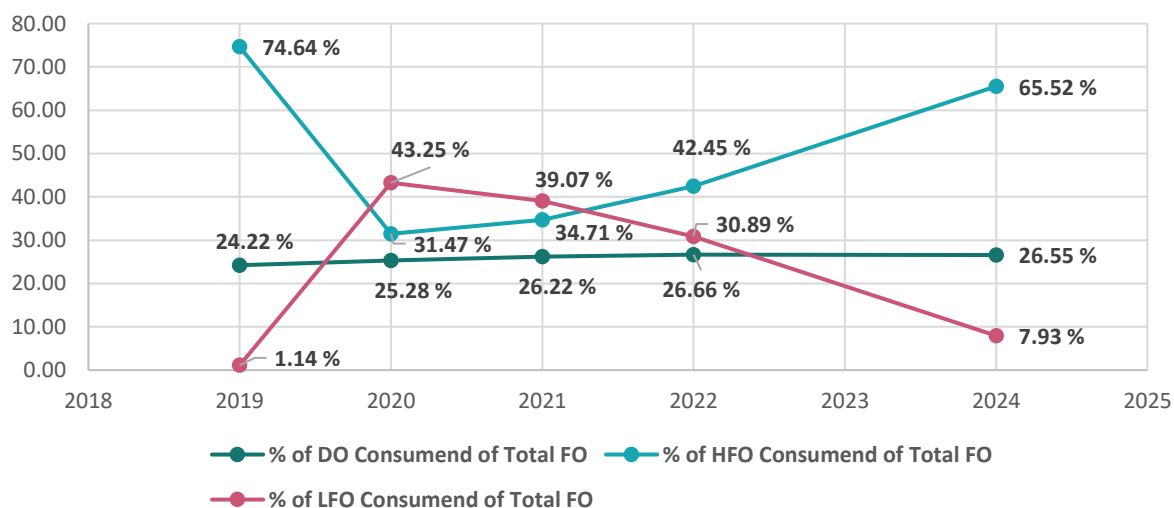
11. Out of a total 902 Indian ships falling under the purview of fuel consumption reporting, these sizes of ship (GT less than 5000) are about 613. These sizes of ships emit about 19% of total emissions from Indian ships.
12. Compared to ships of 5,000 GT & above, Carbon Emission Tons per GT & Tons per deadweight is more than one, that is, about 1.8 & 1.96 respectively, indicating a composition comprising of a higher number of service vessels.
13. Compared to other types, Tugs & Offshore Supply vessels form a large part of this fleet and comprises about 277 and 94 vessels respectively, that is, about 45% and 15% respectively and about 60 % in total.
14. Tugs emit about 0.268 Million Tons of Carbon per year and Offshore supply vessels about 0.326 Million Tons of Carbon per year, that is, about 26% and 32% of all carbon emissions respectively from ships less than 5,000 GT and together they emit about 62%.

Fuel Consumption Data for 2025 Calendar Year

Comparative Carbon Emissions and Fuel Consumption: 2019-2025

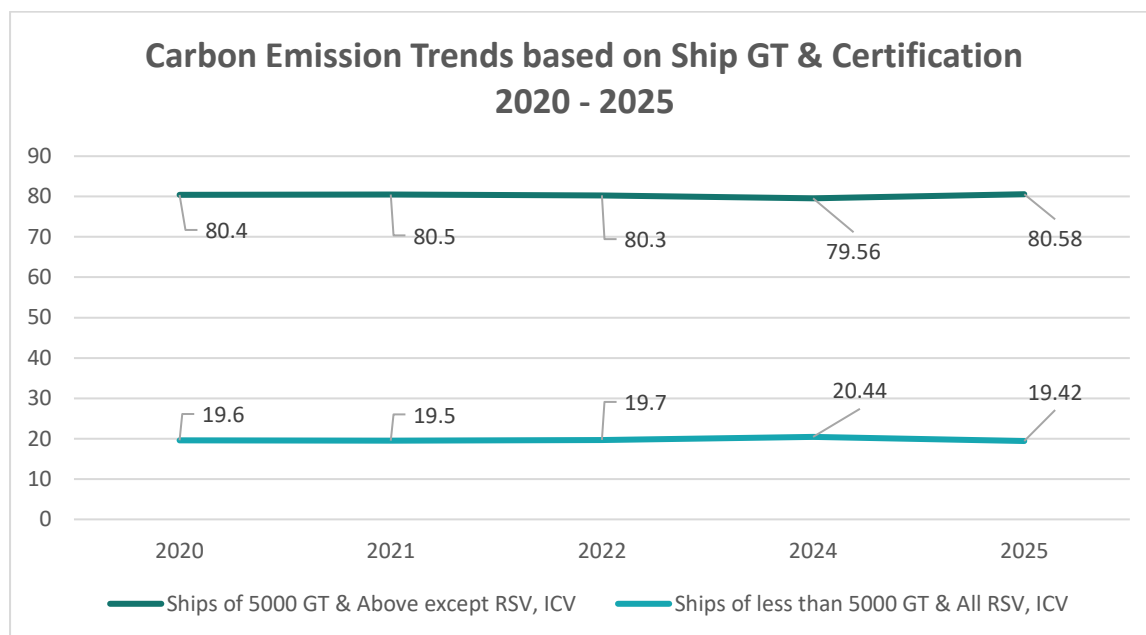
Calendar Year	Gross Carbon Emissions (MT)	Gross Diesel Oil Consumption (MT)	Gross Heavy Fuel Oil Consumption (MT)	Gross Light Fuel Oil Consumption (MT)	Gross Total DO + HFO + LFO	Gross LNG Consumption (MT)	Gross BIOFUEL Consumption (MT)
2025	5.43	0.4387 (25.38%)	1.2453 (72.06%)	0.0435 (2.5%)	1.728	0	0.00054
2024	4.95501	0.41871 (26.55%)	1.03355 (65.52%)	0.12509 (7.93%)	1.57735	0	0
2022	4.84659	0.41026 (26.7%)	0.65309 (42.4%)	0.47527 (30.9%)	1.53862	0	0
2021	4.96108	0.41231 (26.2%)	0.54576 (34.7%)	0.6143 (39.1%)	1.57237	0.00147	0
2020	4.62146	0.36908 (25.3%)	0.45948 (31.4%)	0.63151 (43.3%)	1.46007	0.006358	0
2019	5.14155	0.397025 (24.2%)	1.223486 (74.7%)	0.018 (1.1%)	1.63851	0	0

Trends in Change in Type of Fuel Consumed 2019 - 2025



Carbon Emissions and Ship Categories: Calendar Year 2025

Ship Category	Carbon Emissions (Million Tones)	Percentage total Carbon Emissions
Ships of 5,000 GT & Above except RSV & ICV	4.3773	80.58%
RSV & ICV Ships of 5,000 GT & Above	0.042157	0.77%
Ships of less than 5,000 GT except RSV & ICV	0.846	15.57%
RSV & ICV Ships of less than 5,000 GT	0.166	3.05%
Total	5.43159	100%



*** Detailed data and analysis are presented in the Annexure to this section**

Efforts by Government of India to Reduce Emissions from Indian Ships

There are several Policy initiatives undertaken by GOI to transit Indian Shipping and Ports towards a greener regime. These include:

National Green Hydrogen Mission.

The overarching objective of the Mission is to make India the Global Hub for production, usage and export of Green Hydrogen and its derivatives. This will contribute to India's aim to become Aatmanirbhar (self-reliant) through clean energy and serve as an inspiration for the global Clean Energy Transition. The Mission will lead to significant decarbonisation of the economy, reduced dependence on fossil fuel imports, and enable India to assume technology and market leadership in Green Hydrogen.

Under the Mission, the Ministry of Ports, Shipping and Waterways (MoPSW) has been assigned a crucial role in establishing India's export capabilities for green hydrogen and its derivatives. MoPSW is required to facilitate development of the required infrastructure including storage bunkers, port operations equipment, and refuelling facilities. MoPSW is to also drive the adoption of hydrogen/derivatives (ammonia/methanol) as propulsion fuel for ships. The Ministry will also work towards making India as a green hydrogen/derivative refuelling hub.

The MoPSW is given the following targets:

"To build/retrofit two Indian ships to be powered by Green Hydrogen or its derivative fuels (Green Ammonia, green methanol etc.) by 2027, followed by annual addition of at least two ships powered by green fuels thereafter".

"To emerge as a green refuelling hub for maritime transport by establishing green refuelling bunkers connected to Green Hydrogen/Ammonia production facilities at all major ports".

The following target has already been completed:

- i. Issuance of requirements for ships carrying liquefied hydrogen as Merchant Shipping Notice 6 of 2023.
- ii. Three ports have been identified to develop as Hydrogen Hubs to accelerate the National Green Hydrogen Mission by providing logistical support for building hydrogen storage bunkers at three Indian ports in east, north, and south India by 2030, which will be scaled up to 12 Indian ports in the near future. The three key hydrogen storage hubs identified are Paradip Port in the east, Deendayal Port in Kandla, and V. O. Chidambaranar Port, formerly Tuticorin Port in Thoothukudi, Tamil Nadu.

Green Tug Transition Program

In terms of numbers, tugs constitute the biggest chunk of Indian Registered vessels with almost 32% of all Indian registered vessels being Tugs. They emit about 4% of emissions from Indian Ships and about 22% of emissions from all Indian ships less than 5,000 GT.

This policy initiative has set target-aims to ensure Green Tugs are working in all major ports by 2025, and 50% of all Tugs converted into Green Tugs by 2030. Green Hybrid Tugs are defined as ones which are initially powered by Green Hybrid Propulsion systems, and subsequently adopting non-fossil fuel solutions like (Methanol, Ammonia, Hydrogen).

Harit Sagar of Green Port Guidelines

The Maritime Vision 2030 has detailed sustainability initiatives to be undertaken by Indian ports and include initiatives such as supplying shore power to visiting ships in a three-phased manner by 2030, conversion of port vehicles and cargo handling equipment to greener fuels and shore power in a phased manner by 2030, establishing LNG bunkering stations at select ports in line with fuel adoption trends by shipping liners, increase usage of efficiency enhancements techniques such as ship-tracking and smart-lighting at ports to move towards CO2 and to build infrastructure (sewage treatment plant) in a 2-phase manner and develop oil spill response plans.

The Harit Sagar of Green Port guidelines issued in 2023 has brought forward the target date of all the above initiatives in order to reduce carbon emissions in port operations faster and create sustainable ports. It aims to:

- i. Supply shore power at all major ports to all ships including EXIM by 2025.
- ii. Explore the possibility of installation of “Desalination Plants” if not installed as an alternative of ground/surface water. This will enable the production of Green Hydrogen.
- iii. Green Ammonia bunkers and refuelling facilities shall be established at all Major Ports by 2035.
- iv. Ports shall make efforts to retrofit Port Crafts (including Tugs, Pilot Boats, Mooring Boats, Survey Boats etc.) with available technology for propulsion on cleaner and greener fuel viz., Green Ammonia, Green Hydrogen (through Fuel Cell), Green Methanol etc in phased manner.
- v. Ships calling to the Port shall compulsorily declare type (as per MARPOL) and approximate quantity of waste on board and seek the Port’s assistance in disposing the same. All Ports shall provide shore reception facility, with approved vendors, for discharging the waste by ships calling at ports as per the Indian Rules.
- vi. All future procurements of Port vehicles and cargo handling & other equipments shall preferably be electrically driven / electrically powered or should be compatible with low carbon greener fuels viz., CNG, Methanol, Ethanol, Ammonia, Hydrogen Fuel Cell etc.

Regulatory Efforts by Directorate to Facilitate Green Shipping

- The new amendments to MARPOL Annex VI related to EEXI and operational CII has been implemented on all ships including coastal ships.
- The Directorate has granted permission to Indian ships to operate on biofuels and its blends subject to being certified for sustainability. This will help ship owners to achieve desired CII reductions and shipping conglomerates to demonstrate their efforts towards sustainability.

- The Directorate has devised procedures for supply of shore power to ships with shore power requirements up to 150 KW. The Maritime Vision 2030 has set a target for all major trade to supply shore power to all ships in a three-phase manner by 2030. This has paved way to reduce GHG emissions in ports, while working towards a strategy to supply shore power to all visiting ships.
- Facilitating operation of a Green Coastal Shipping Corridor between Muldwarka and Surat/Navi Mumbai with ship operated on 30% biofuel blended diesel with shore power at both ends and just in time arrival.

Annexure – Detailed Data on CO2 Emissions from Indian Shipping

Distribution and Size of Indian Shipping

Different Types and Numbers of Ships in Indian Flag only for the Purpose of Carbon Emissions

The Indian Ships are divided into following three categories for the purpose of fuel consumption data:

- i. Ships of 5,000 GT and above Certified under MS Act: These ships are further sub-divided as to whether have been undertaking coastal or International voyages during the calendar year 2025.
- ii. Ships less than 5,000 GT and Certified under MS Act.
- iii. Ships registered as ICV or RSV

Category	Total Numbers	Average Age (Years)	Total GT	Total DWT
Ships of 5,000 GT and above Certified under MS Act (non-RSV, ICV)	270	18	10624290	17978307
Ships of less than 5,000 GT and Certified under the MS Act ((non-RSV, ICV)	453	19	466405	431838
Ships of less than 5,000 GT registered as RSV	135	14	75351	66902
Ships of less than 5,000 GT registered as ICV	25	14	17863	17494
Ships of 5,000 GT and above are Certified as ICV	19	5.37	108104	151615
Gross Total	902	17.53	11.29 Million	18.65 Million

Ships of 5,000 GT and above Certified under MS Act:

Data based on coastal or foreign-run

Break-up of Ships of 5000 GT and above Certified under MS Act				
Based on Area of Operation	Total Numbers	Average Age	Total GT	Total DWT
Total	270	18	10624290	17978307
On Coastal Run	75	21	1854538	2750371
On International Run	195	17	8769752	15227936

Data based on Type and Area of Operation

Break-up of Ships of 5000 GT and above Certified under MS Act					
Type	Area of Operation	Total Numbers	Average Age	Total GT	Total DWT
Bulk Carrier	All	72	16	2858220	5291916
	International	68	16	2794220	5179528
	Coastal	4	16	64000	112388
Container	All	26	21	737349	937964
	International	15	19	450980	562693
	Coastal	11	24	286369	375271
Gas Carriers	All	28	18	1185559	1401855
	International	22	18	900316	1056073
	Coastal	6	18	285243	345782
General Cargo	All	2	21.5	20816	27797
	International	1	22	7823	10320
	Coastal	1	21	12993	17477
LNG Carrier	All	0	0	0	0
Tankers	All	113	19	5552938	10061349
	International	81	17.59	4521219	8328186
	Coastal	32	21.37	32241	54161
Passenger	All	7	11.14	56938	12765
	International	2	2.5	13657	2187
	Coastal	5	14.6	43281	10578
Dredgers (Other Cargo Ships)	All	15	24	121815	160889
	International	4	26	34807	47686
	Coastal	11	23	87008	113203
Others - Cement Carrier / Heavy Lift Pipe Laying/Research Vessel/Transshipment Barge (Other Cargo Vessel)	All	7	22	90655	83772
	International	2	15.5	46730	41263
	Coastal	5	24	43925	42509

Ships less than 5000 GT and Certified under MS Act

Type	Further Designation	Total Numbers	Average Age	Total GT	Total DWT
Container	-	2	27.5	7470	9279
Gas Carrier	-	3	34	8727	6941
Passenger	All	38	22	31451	9921
	High Speed	4	22	1647	151
	Passenger Cum General Cargo	8	31	16237	6592
	Ferries	20	20	7487	1705
	Other	6	19		1474
General Cargo	-	32	22	48,586	70168
Tanker	-	5	27	3956	5180
Other	All	373	19	355835	308910
	Anchor Handling Tug (AHT)/AHT Cum Supply Vessels (AHTS)	40	22	70066	65676
	Tug	170	17	57937	32331
	Dredgers	2	22	977	400
	Offshore Supply Vessel/Supply Vessel/Platform Supply Vessel	84	19	168732	173027
	Crew Boat/Utility Vessels/Work Boat	34	24	9461	5714
	Pilot Launch/Survey Launch	16	7	1007	125
	Mini Bulk Carrier	3	32	2214	2880
	Well Stimulation Vessel	0	0	0	0
	Cement Carrier	10	24	23834	31019
	Deck Loading Barge/Dumb Barge	2	48.5	1727.1	1595.94
	Research Vessel	11	25	23778	10437
	Diving Support Vessel	0	0	0	0
	Lighthouse Tender Vessel	1	23	2466	1347

Ships Certified under ICV Notification

Type	Further Designation	Total Numbers	Average Age	Total GT	Total DWT
Ships less than 5,000 GT Certified as ICV					
Total	-	25	14	17863	17494
Other Cargo	Tug	12	16	3973	2290
	Utility Vessel	2	15	243	107
	Offshore support/supply vessel	6	4	2647	1330
	General Cargo	3	19	6181	8286
	Dredger	2	24	4819	5481
Ships of 5,000 GT & above Certified as ICV					
Total	-	19	5.37	108104	151615.1
Other Cargo	General Cargo	18	4.67	102812	136397.7
	Dredger	1	18	5292	7285.36
Ships less than 5,000 GT Certified as RSV					
Total	-	135	14	75351	66902
Other Cargo Ships	Tugs	95	13	34649	18217
	Pilot Launch/Security & Patrol Boat	9	17	723	5303
	Bulk Carrier	2	11	4920	5989
	Diving Support/Offshore Support	3	13	2898	1953
	General Cargo	9	20	16901	18133
Tankers	Tanker	10	17	8344	10695

Definitions of Ships of less than 5,000 GT only for the purpose of Carbon Emissions and Trading Pattern assumptions

Sr. No	Ship Type	Remarks
1	Bulk Carrier	A ship which is intended primarily to carry dry cargo in bulk, including such types as ore carriers as defined in regulation 1 of chapter XII of the International Convention for the Safety of Life at Sea (SOLAS), 1974, (as amended) but excluding combination carriers.
2	Gas Carrier	A cargo ship, other than an LNG carrier, constructed or adapted and used for the carriage in bulk of any liquefied gas.
3	Tanker	An oil tanker as defined in regulation MARPOL Annexure I or a chemical tanker or an NLS tanker as defined in regulation 1 MARPOL Annexure II
4	Container	Ship designed exclusively for the carriage of containers in holds and on deck.
5	General cargo	Ship with a multi-deck or single-deck hull designed primarily for the carriage of general cargo.
6	Passenger Ship	A ship which carries more than 12 passengers.
7	High Speed Passenger Craft	Passenger ships complying with HSC Code
8	Dredgers	Ship engaged in Dredging operation
9	Tug	Ships which aid the mooring or berthing operation of a ship by either towing or pushing a vessel towards the port.
10	Anchor Handling Tug Supply Vessel	Tugs which are also involved in anchor handling operation and to supply essentials to other vessel/platform.
11	Offshore Support / Supply Vessel	Vessels intended for several roles/services related to offshore support
12	Utility Vessel	Vessels used for multipurpose activities such as towing, other miscellaneous works, etc.
13	Launch	Typically, a small (L < 24m) self-propelled vessel which can be used for various purposes such as mooring, hydrographic surveys, transporting marine pilots, and carrying not more than 12 passengers. Such vessels may be of the open, partially open or closed type.
14	Crew Boat	Vessels used for transporting crew of other vessels etc. with number of transported crew limited to 12. Alternatively, the requirements specified by the Administration (IP/SPS).
15	Others	Includes: Research vessels, Floating crane, Lighthouse tender, Buoy tender vessel, Security & Patrol Boat, Pipe-Laying/hook-up barge

Voyage based distribution of Carbon Emissions from Ships of 5,000 GT & above excluding RSV & ICV

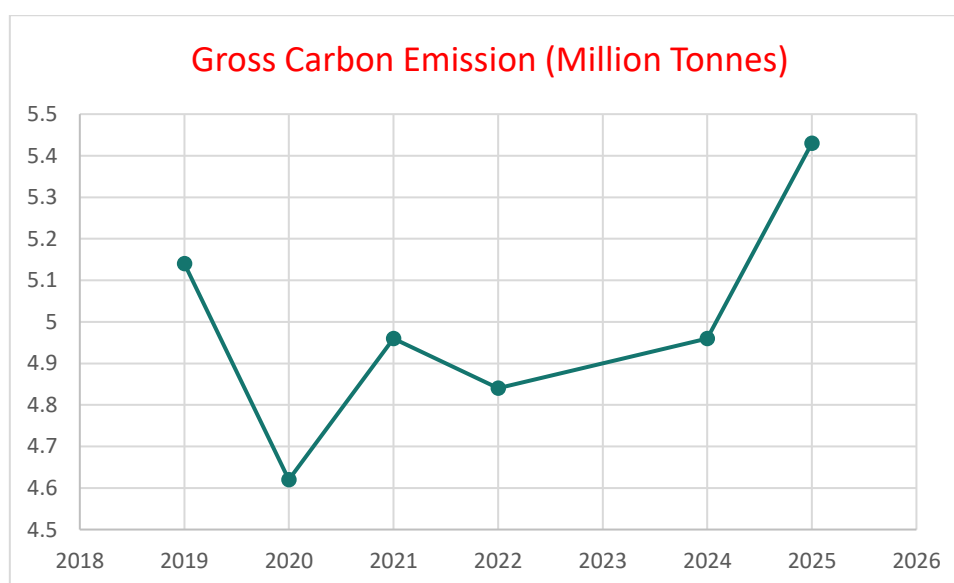
Operations	Total Number of Ships	Carbon Emissions in Million Tons	Percentage of total carbon emissions from Indian ships	Percentage of total carbon emission from ships of 5000 GT & above, except RSV & ICV
2024 (Coastal)	78	1.059629	21.99%	26.88%
2024 (International)	159	2.882540	58.17%	73.12%
2025 (Coastal)	75	0.982	18.1%	22.43%
2025 (International)	195	3.395	62.52%	77.56%

Considering the following:

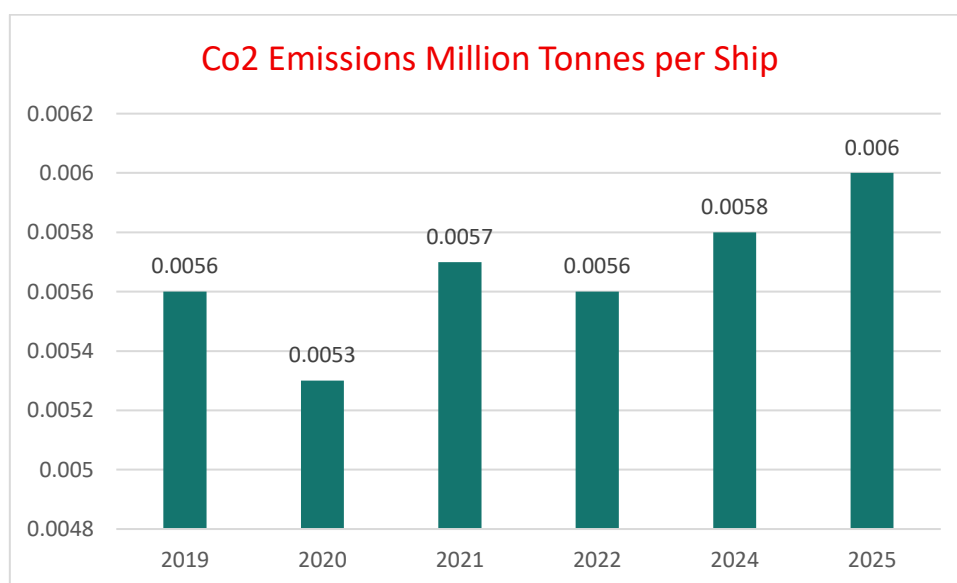
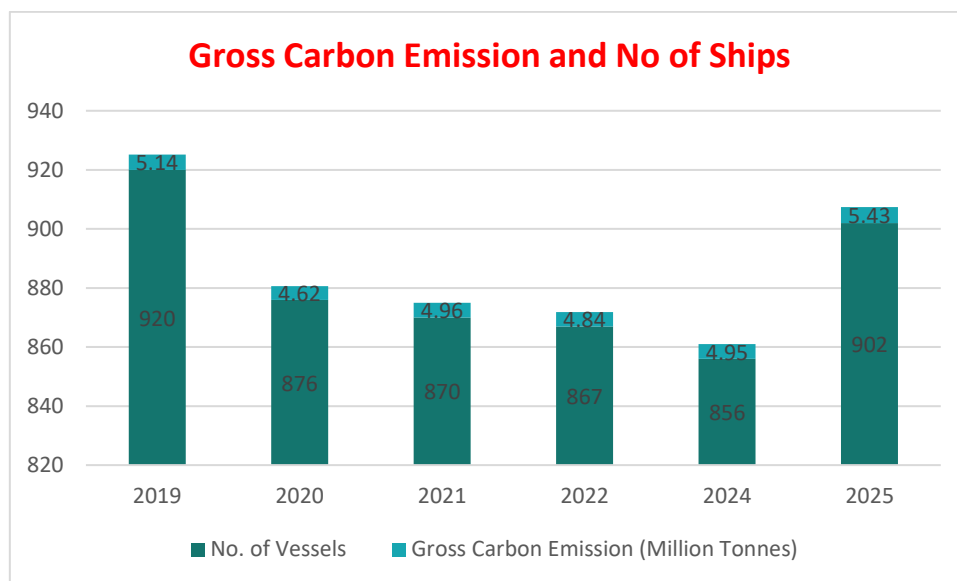
- All Ships of less than 5,000 GT on Coastal Run.
- All Ships certified as RSV or ICV on Coastal Run.
- 195 Ships of 5,000 GT and above on Foreign Run

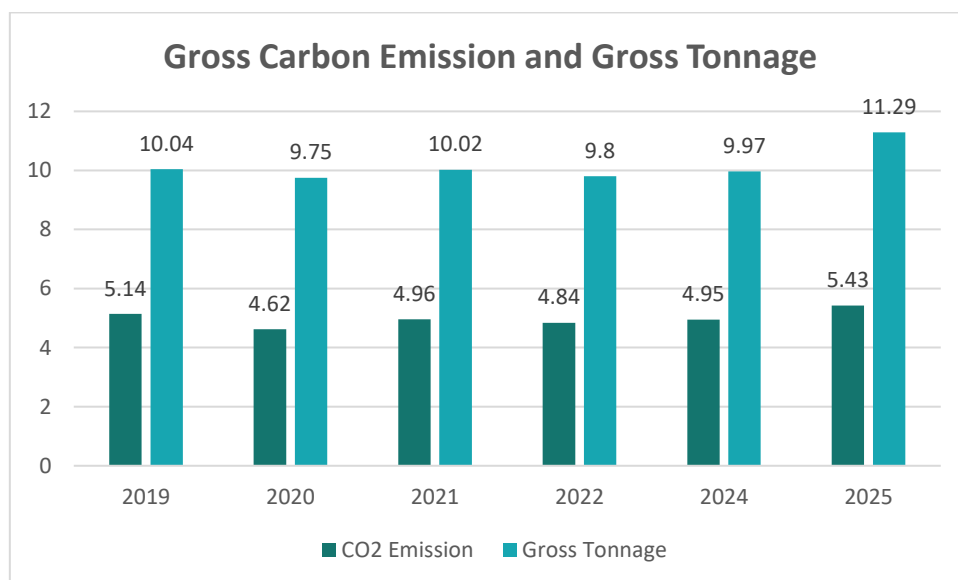
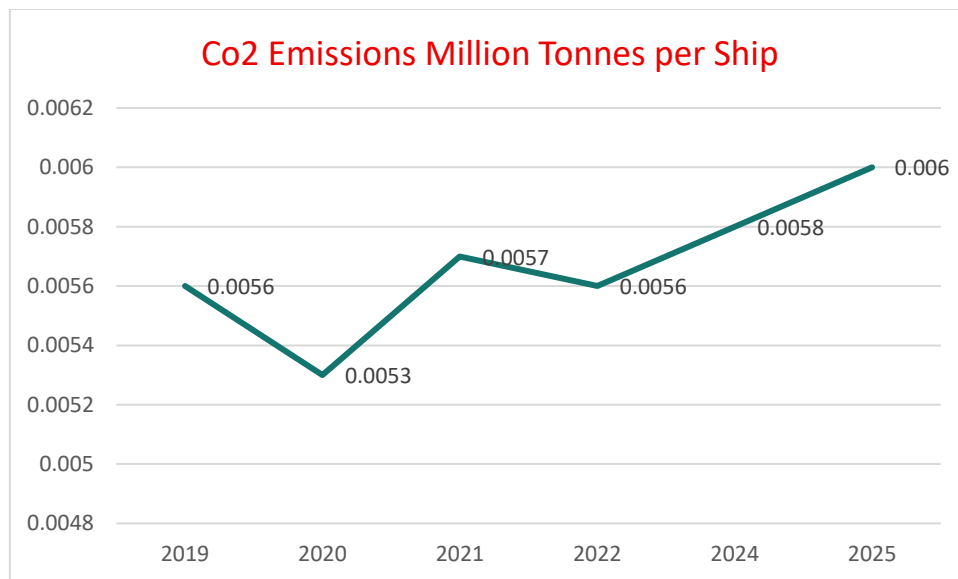
The emissions from Coastal run contributes to about $18.1\% + 19.4\% = 37.5\%$ of total emissions from Indian ships.

Carbon Emission from Indian Ships

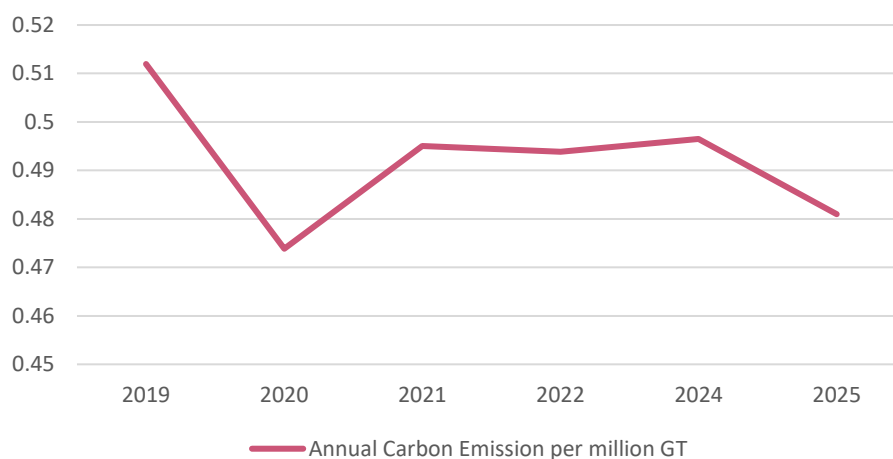


Carbon Emission Vs Number of Ships

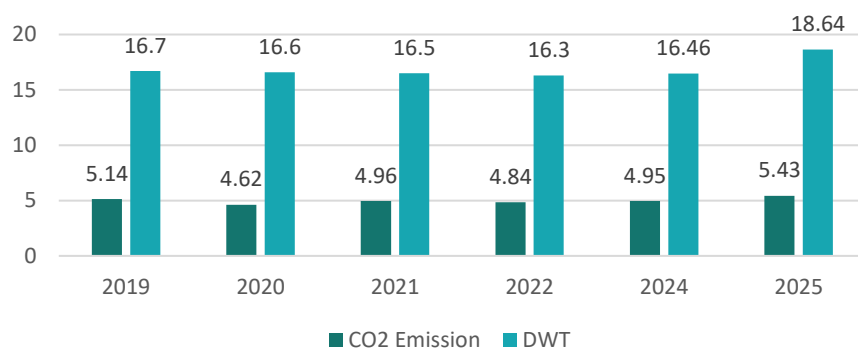




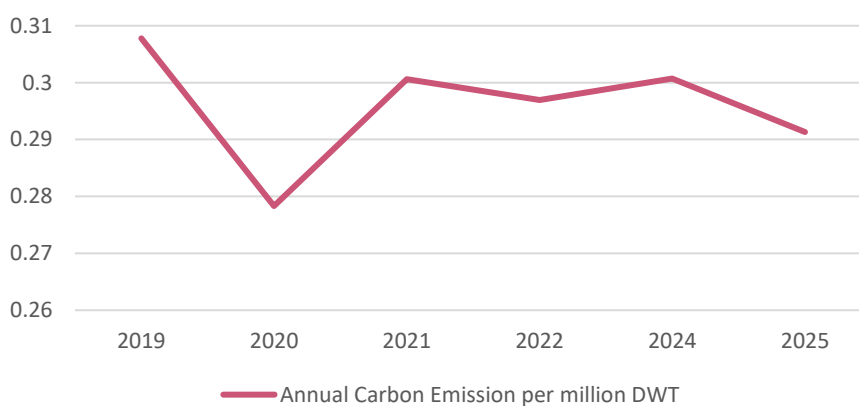
Annual Carbon Emission per million GT



Gross Annual Emission vs Dead Weight Tonnage



Annual Carbon Emission per million DWT



Carbon Emissions from Ships of 5000 GT & above except RSV & ICV

Basic Values of Fuel Consumption and Carbon Emissions

Calendar Year	Gross Carbon Emissions (MT)	Gross Diesel Oil Consumption (MT)	Gross Heavy Fuel Oil Consumption (MT)	Gross Light Fuel Oil Consumption (MT)	Gross Total DO + HFO + LFO	Total Number of Ships
2025 (All)	4.3773	0.126156	1.233	0.036125	1.4	270
2025 (Coastal)	1.05962916	0.054945	0.256	0.02665	0.3376	75
2025 (International)	2.88254009	0.071211	0.977	0.0335	1.082	195
2024 (All)	3.94216925	0.113924	1.024619	0.122585	1.261128	237
2024 (Coastal)	1.05962916	0.054724	0.24516	0.038323	0.338207	78
2024 (International)	2.88254009	0.0592	0.779459	0.084262	0.922921	159

Data based on Ship Type

Ship Type	No. of Ships	DO Consumption	HFO Consumption	LFO Consumption	LNG Consumption	CO2 Emissions (Million Tones)
Tanker	113	48867	573368	11108	0	1.977731
Bulk Carrier	72	13603.06	283478	23561.54	0	1.001329
Container	26	4302	152112	11108	0	0.487573
Gas Carrier	28	4062	185360	23561.54	0	0.613078
General cargo	2	449	658	33	0	0.003489
Passenger Vessels	7	14094	1801	1422	0	0.050794
LNG Carrier		0	0	0	0	0.000000
Others	22	40779	36172	0	0	0.243377
Total	270	126156.06	1232949	36124.54	0	4.377370

Data based on Ship Age Profile

Age of the ship	No. of Ships	DO Consumption (tones)	HFO Consumption (tones)	LFO Consumption (tones)	LNG consumption (tones)	CO2 Emissions (million tons)
0-5 years	4	5170	6100	0	0	0.035570
5-10 years	7	3063	33720	1097	0	0.118281
10-15 years	59	41384	272855	7526.54	0	1.025021
15-20	98	36982	492336	11627	0	1.688335
20-25 years	72	21895	332342	11787	0	1.142974
25 and above	30	17662	95596	4087	0	0.367188
Total	270	126156.06	1232949	36124.54	0	4.377370

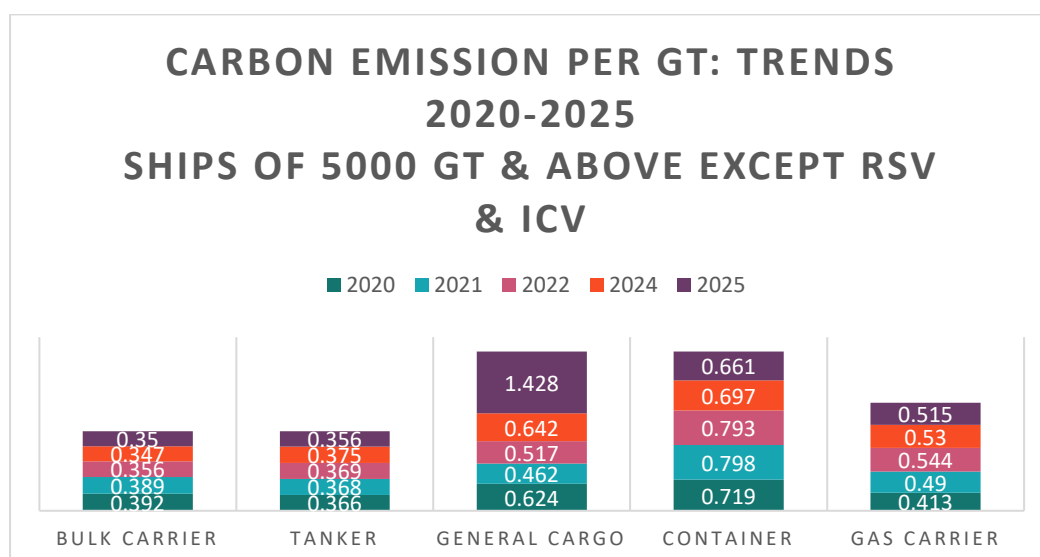
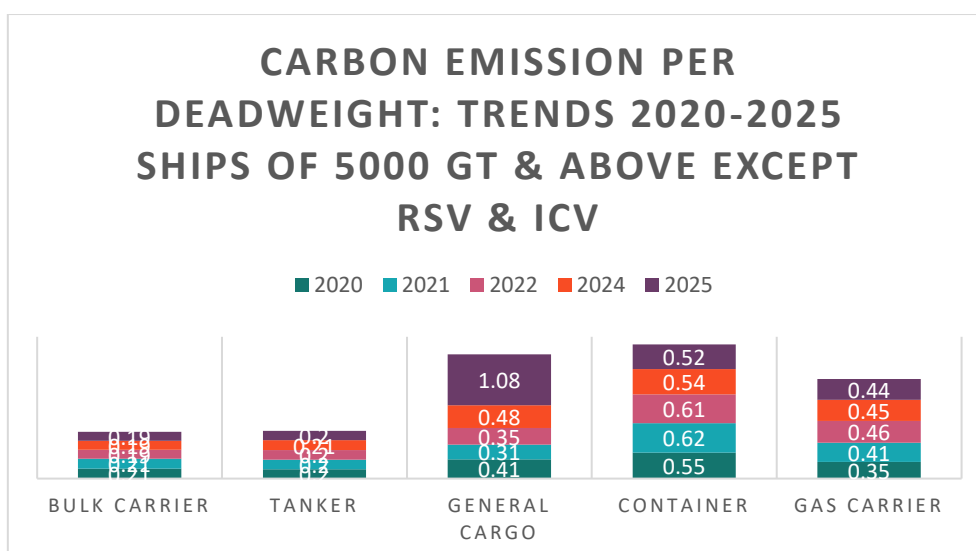
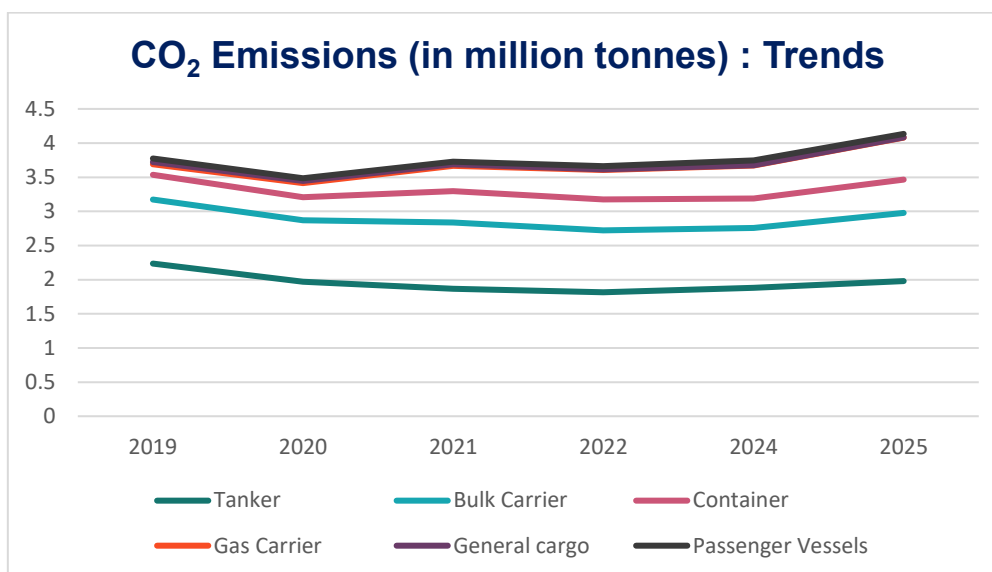
Important Gross Data

<i>Data (Vessels of > = 5,000 GT)</i>	2020	2021	2022	2024	2025
Numbers	233	242	236	237	270
Total GT in Millions	9.06	9.3	9.21	9.33	10.624
Total Deadweight in Millions	15.52	15.77	15.56	15.83	17.97
Average Age	15	15	16	17.54	18
Hours Underway	861419	872356.7	878224.08	954266	1065055
Percentage of hours underway of total hours in the calendar year	42.20%	41.10%	42.48%	45.96%	45.03%
Total CO2 Emissions in Million Tonnes	3.71	3.99	3.89	3.94	4.38
CO ₂ Emissions/GT	0.41	0.43	0.42	0.42	0.412
CO ₂ Emissions/Deadweight	0.24	0.253	0.250	0.249	0.243

CO ₂ Emissions/Hours Underway in Carbon Emissions in tons/hr underway	4.306	4.57	4.43	4.13	4.11
Average gm-CO₂/DWT-NM for ship types Bulk Carrier, General Cargo, Tanker, Container, Gas Carrier, LNG Carrier					
Average gm-CO ₂ /DWT-NM (numbers)	8.0 (205)	8.73 (214)	8.04 (210)	6.8 (210)	7.66 (241)
Average gm-CO ₂ /DWT-NM (numbers) underway for less than 1000 Hrs.	13.3 (15)	13.6 (15)	20.93 (13)	8.07 (6)	26.65 (10)
Average gm-CO ₂ /DWT-NM (numbers) underway between 1000 – 2000 Hrs	9.61 (10)	10.5 (16)	10.61(5)	8.20 (14)	9.12 (15)
Average gm-CO ₂ /DWT-NM (numbers) underway between 2000 – 3000 Hrs	10.79 (26)	9.45 (44)	7.13(41)	8.62 (25)	7.41 (34)
Average gm-CO ₂ /DWT-NM (numbers) underway between 3000 – 4000 Hrs	8.38 (54)	9.85 (46)	7.56 (63)	6.95 (48)	6.76 (58)
Average gm-CO ₂ /DWT-NM (numbers) underway between 4000 – 5000 Hrs	6.55 (65)	7.05 (49)	6.91(48)	6.37 (56)	7.23 (62)
Average gm-CO ₂ /DWT-NM (numbers) underway more than 5000 Hrs	5.29 (35)	6.39 (44)	6.60(40)	5.99 (60)	6 (62)

Hours underway ships > = 5,000 GT	International			Coastal			Total		
	2024	2025		2024	2025		2024	2025	
Underway for less than 10% of total hours in a calendar year	6	10		5	5		11	15	
Underway for 10-20% of total hours in a calendar year	7	10		2	4		9	14	
Underway for 20-30% of total hours in a calendar year	12	16		15	11		27	27	
Underway for 30-40% of total hours in a calendar year	23	28		17	16		40	44	
Underway for 40-50% of total hours in a calendar year	35	44		12	22		47	66	
Underway for 50-60% of total hours in a calendar year	35	36		10	6		45	42	
Underway for 60-70% of total hours in a calendar year	27	33		9	2		36	35	
Underway for more than 70% of the total hours in a calendar year	13	18		8	9		21	27	
Gross Total	158	195		78	75		236	270	

Trends



Bulk Carriers of 5000 GT and Above

Bulk carriers >= 5000 GT	ALL	
	2024	2025
Numbers	64	72
Total GT in Millions	2.514	2.86
Total Deadweight in Millions	4.640	5.29
Average Age	14.64	16
Hours underway	254261	295446
Percentage of hours underway of total hours in the calendar year	45.35%	46.84%
Total CO ₂ Emissions (Million Tonnes)	0.873	1.001
Average CII (t-CO ₂ /DWT-NM)	5.272	4.97

Tankers of 5,000 GT and Above

Tankers >= 5.000 GT	All	
	2024	2025
Numbers	102	113
Total GT in Millions	5.024	5.55
Total Deadweight in Millions	9.060	10.06
Average Age	18.22	19
Hours underway	389347	421524
Percentage of hours underway of total hours in calendar year	43.57%	42.58%
Total CO ₂ Emissions (Million Tonnes)	1.883	1.977
Average CII (t-CO ₂ /DWT-NM)	6.693	7.05

Containers of 5,000 GT and Above

Containers >= 5,000 GT	All	
	2024	2025
Numbers	21	26
Total GT in Millions	0.625	0.737
Total Deadweight in Millions	0.810	0.937
Average Age	21.29	21
Hours underway	109417	110629
Percentage of hours underway of total hours in the calendar year	59.48	48.57
Total CO ₂ Emissions (Million Tonnes)	0.435	0.487
Average CII (t-CO ₂ /DWT-NM)	9.48	10.34

Gas Carriers of 5,000 GT and Above

Gas Carriers >= 5,000 GT	All	
	2024	2025
Numbers	22	28
Total GT in Millions	0.904	1.19
Total Deadweight in Millions	1.068	1.4
Average Age	17.59	18
Hours underway	102479	124802
Percentage of hours underway of total hours in the calendar year	53.17%	50.88%
Total CO ₂ Emissions (Million Tonnes)	0.479	0.613
Average CII (t-CO ₂ /DWT-NM)	8.58	8

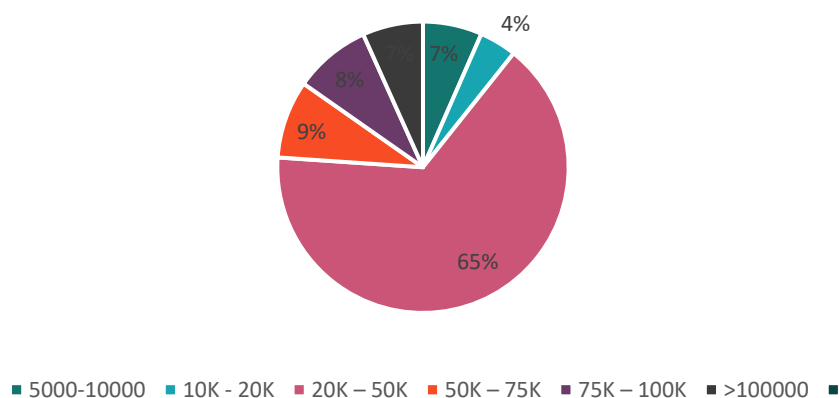
General Cargo of 5,000 GT and Above

General Cargo >= 5,000 GT	All	
	2024	2025
Numbers	1	2
Total GT in Millions	0.013	0.021
Total Deadweight in Millions	0.017	0.0278
Average Age	21	22
Hours underway	2756	2373
Percentage of hours underway of total hours in the calendar year	31.46%	13.54%
Total CO ₂ Emissions (Million Tonnes)	0.008	0.03
Average CII (t-CO ₂ /DWT-NM)	16.51	7.06

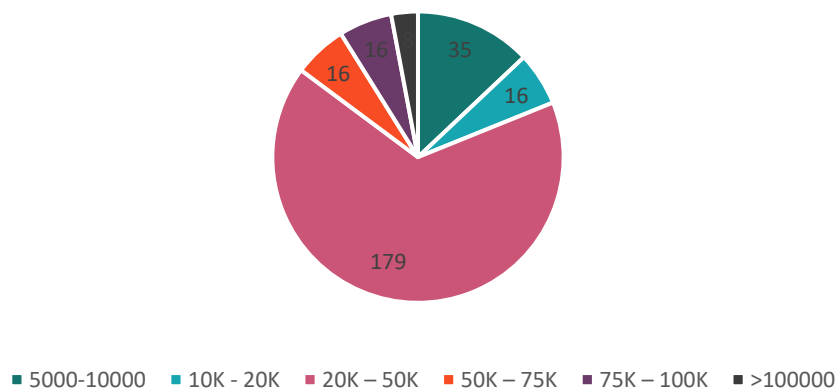
Data based on Ship Size

Size (GT)	No. of Ships	DO Consumption	HFO Consumption	LFO Consumption	LNG Consumption	CO ₂ Emissions (Million Tons)
5000-10000	35	52665	37380	753	0	0.287618
10K - 20K	16	4839	53095	22	0	0.180921
20K – 50K	179	47660.06	829773	33580.54	0	2.861611
50K – 75K	16	9653	109840	1769	0	0.378563
75K – 100K	16	9393	110338	0	0	0.374301
>100000	8	1946	92523	0	0	0.294355
Total	270	126156.06	1232949	36124.54	0	4.377370

CO2 Emissions (Million Tones) of Ships of 5000GT & above - Size wise distribution



No. of Ships of 5000GT & above - Size wise distribution

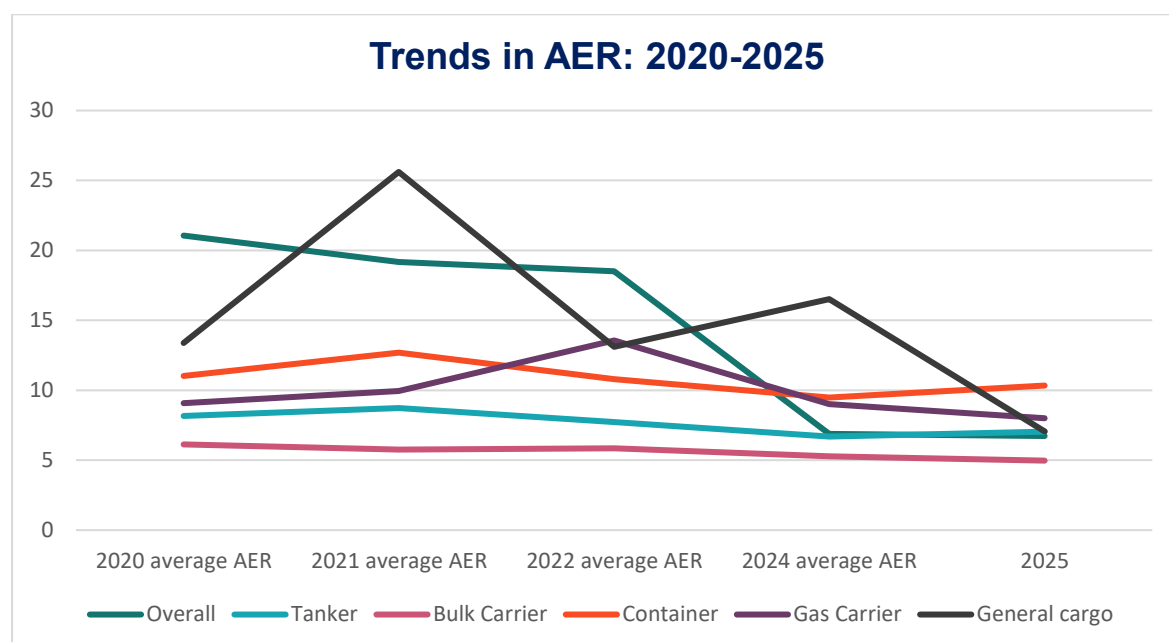


Anticipated Operational Carbon Intensity and CII Ratings

Carbon Intensity – Annual Efficiency Ratio (AER)

The carbon intensity has been determined in terms of AER i.e. Grams of CO₂/ DWT-Nm for Cargo ships and the comparison with 2020, 2021, 2022, 2024 & 2025 data is tabulated below. The overall AER has decreased from 6.87 to 6.73

	2020 average AER	2021 average AER	2022 average AER	2024 average AER	2025
Overall	21.06	19.18	18.51	6.87	6.73
Tanker	8.16	8.73	7.72	6.69	7.05
Bulk Carrier	6.13	5.76	5.85	5.27	4.97
Container	11.02	12.69	10.80	9.48	10.34
Gas Carrier	9.07	9.95	13.56	9.01	8
General cargo	13.38	25.61	13.11	16.51	7.06



Carbon Intensity Indicator (CII) Ratings:

Based on Regulation 28 of MARPOL Annexure VI, ships are required to report Attained Annual Carbon Intensity from 2025 based on data collected in 2023 and every year thereafter. This is compared against the Required CII for that ship type and the ships are rated into A,B,C,D,E based on their CII performance. Although the actual requirement of rating is applicable from next year, an assessment has been done based on the data reported for 2022 and the results are below:

	Total Ships	No. of Ships in A Rating	No. of Ships in B Rating	No. of Ships in C Rating	No. of Ships in D Rating	No. of Ships in E Rating
Total ships where CII is applicable	227	10	39	116	50	12
Tanker	107	1	21	65	15	5
Bulk Carrier	67	4	8	30	20	5
Container	24	5	7	7	4	1
Gas Carrier	27	0	3	13	11	0
General cargo	2	0	0	1	0	1

Ships of less than 5,000 GT

Carbon Emission in 2025

Total Carbon Emission from Indian Vessels (Million Tons)	Total Carbon Emissions from Indian Vessels less than 5000 GT (Million Tons)	Percentage of total emissions from Indian Vessels
5.432	1.012	18.63%

Ships Certification	Total Carbon Emissions in Million Tons	Total Number	Total Deadweight (Million)	Total Million GT	Carbon Emission in Tons Per GT	Carbon Emissions in Tons per DWT
Ships other than RSV & ICV	0.8748	453	0.431838	0.466405	0.846	1.96
RSV Ships	0.1477	135	0.066902	0.075351	1.96	2.207
ICV Ships	0.018160	25	0.017494	0.017863	1.016	1.03

Trends in Basic Data

<i>Data (Vessels of < 5,000 GT)</i>	2020	2021	2022	2024	2025
Numbers	631	609	612	612	613
Total GT in Millions	0.63	0.607	0.600	0.6005271	0.559619
Total Deadweight in Millions	0.6	0.579	0.567	0.567236507	0.516234
Average Age (Years)	15	15	17	18.20	16
Total CO ₂ Emissions in Million Tonnes	0.861	0.93	0.915	0.9804	1.012
CO ₂ Emissions/GT	1.37	1.53	1.525	1.6325	1.8
CO ₂ Emissions/Deadweight	1.43	1.61	1.61	1.7283	1.96

Fuel Consumption & Trends in Fuel Consumption Data

Fuel Type	Consumption (MT)	CO ₂ emission (Tonnes)	Consumption (MT)	CO ₂ emission (Tonnes)
	2024		2025	
Diesel/Gas Oil	296870.75	951767.631	307677	986411.69
Heavy Fuel Oil	6648.44	20703.239	829	2582.534
Light Fuel Oil	2506.18	7896.97003	7321	23068.25
Total	306025.37	980367.840	315827	1012062.48

Ship Type: Carbon Emissions

Ship Type	DO (Tonnes)	HFO (Tonnes)	LFO (Tonnes)	CO2 (Million Tonnes)
Bulk Carrier	2333	0	0	0.00748
Gas Carrier	461	0	0	0.00147
Tanker	2622	0	127	0.0092
Container	514		3716	0.0134
General cargo	11993	773	422	0.0174
Passenger Ship	14719	0	2999	0.0926
Tug	83559.71	56	0	0.268
Offshore Support / Supply Vessel	101737	0	57	0.3263
AHTS	51970.39	0	0	0.167
Multipurpose Utility Vessel	3334	0	0	0.01068
Launch	5675	0	0	0.01819
Crew Boat	4828	0	0	0.0154
Others	12573.94	0	0	0.040312
Total	307677	829	7321	0.9416

Ship Type Basis Analysis

Data (Vessels of < 5,000 GT)		
Tug	2024	2025
Numbers	274	277
Total GT in Millions	0.0951	0.0966
Total Deadweight in Millions	0.0514	0.0528
Average Age (Years)	15.6934	15
Total DO Consumption in Million Tonnes	0.0736	0.0836
Total HFO Consumption in Million Tonnes	0.0000	0.000056
Total LFO Consumption in Million Tonnes	0.0000	0.0000
Total CO ₂ Emissions in Million Tonnes	0.2361	0.268
CO ₂ Emissions/GT	2.4826	2.77
CO ₂ Emissions/Deadweight	4.5977	5.08

Data (Vessels of < 5,000 GT)		
Anchor Handling Tug Supply Vessel	2024	2025
Numbers	41	40
Total GT in Millions	0.0747	0.0700
Total Deadweight in Millions	0.0706	0.0656
Average Age (Years)	17.3659	22
Total DO Consumption in Million Tonnes	0.0514	0.0519
Total HFO Consumption in Million Tonnes	0.0000	0.0000
Total LFO Consumption in Million Tonnes	0.0000	0.0000
Total CO ₂ Emissions in Million Tonnes	0.1648	0.167
CO ₂ Emissions/GT	2.2056	2.38
CO ₂ Emissions/Deadweight	2.3346	2.54

Data (Vessels of < 5,000 GT)		
Offshore Support / Supply Vessel	2024	2025
Numbers	85	94
Total GT in Millions	0.1780	0.172
Total Deadweight in Millions	0.1861	0.176
Average Age (Years)	19.0706	17
Total DO Consumption in Million Tonnes	0.1022	0.101
Total HFO Consumption in Million Tonnes	0.0000	0.000057
Total LFO Consumption in Million Tonnes	0.0000	0.0000
Total CO ₂ Emissions in Million Tonnes	0.3276	0.3263
CO ₂ Emissions/GT	1.8411	1.89
CO ₂ Emissions/Deadweight	1.7608	1.85

Data (Vessels of < 5,000 GT)		
Passenger Ship	2024	2025
Numbers	30	27
Total GT in Millions	0.0372	0.028
Total Deadweight in Millions	0.0110	0.0096
Average Age (Years)	23.0000	23
Total DO Consumption in Million Tonnes	0.0116	0.0201
Total HFO Consumption in Million Tonnes	0.0000	0.0000
Total LFO Consumption in Million Tonnes	0.0000	0.0029
Total CO ₂ Emissions in Million Tonnes	0.0371	0.0739
CO ₂ Emissions/GT	0.9956	2.6
CO ₂ Emissions/Deadweight	3.3841	7.7

Data (Vessels of < 5,000 GT)		
High Speed Passenger Craft	2024	2025
Numbers	12	11
Total GT in Millions	0.0036	0.0037
Total Deadweight in Millions	0.0004	0.0004
Average Age (Years)	19.3333	20
Total DO Consumption in Million Tonnes	0.0054	0.0058
Total HFO Consumption in Million Tonnes	0.0000	0.0000
Total LFO Consumption in Million Tonnes	0.0000	0.0000
Total CO ₂ Emissions in Million Tonnes	0.0172	0.0186
CO ₂ Emissions/GT	4.7258	5.02
CO ₂ Emissions/Deadweight	44.3943	46.5

Data (Vessels of < 5,000 GT)		
General cargo	2024	2025
Numbers	66	54
Total GT in Millions	0.1127	0.0955
Total Deadweight in Millions	0.1562	0.127
Average Age (Years)	21.7727	22
Total DO Consumption in Million Tonnes	0.0151	0.011993
Total HFO Consumption in Million Tonnes	0.0016	0.000773
Total LFO Consumption in Million Tonnes	0.0004	0.000422
Total CO ₂ Emissions in Million Tonnes	0.0550	0.0422
CO ₂ Emissions/GT	0.4880	0.442
CO ₂ Emissions/Deadweight	0.3521	0.332

Data (Vessels of < 5,000 GT)		
Utility Vessel	2024	2025
Numbers	24	20
Total GT in Millions	0.0077	0.0073
Total Deadweight in Millions	0.0055	0.0052
Average Age (Years)	14.9583	16
Total DO Consumption in Million Tonnes	0.0035	0.0036
Total HFO Consumption in Million Tonnes	0.0000	0.0000
Total LFO Consumption in Million Tonnes	0.0000	0.0000
Total CO ₂ Emissions in Million Tonnes	0.0111	0.0116
CO ₂ Emissions/GT	1.4311	1.59
CO ₂ Emissions/Deadweight	2.0010	2.23

Data (Vessels of < 5,000 GT)		
Crew Boat	2024	2025
Numbers	18	18
Total GT in Millions	0.0028	0.0026
Total Deadweight in Millions	0.0007	0.0007
Average Age (Years)	30.7778	31
Total DO Consumption in Million Tonnes	0.0024	0.0048
Total HFO Consumption in Million Tonnes	0.0000	0.0000
Total LFO Consumption in Million Tonnes	0.0000	0.0000
Total CO ₂ Emissions in Million Tonnes	0.0076	0.0155
CO ₂ Emissions/GT	2.7290	5.96
CO ₂ Emissions/Deadweight	10.8626	22.14

Data (Vessels of < 5,000 GT)		
Launch	2024	2025
Numbers	13	13
Total GT in Millions	0.0014	0.0010
Total Deadweight in Millions	0.0006	0.0005
Average Age (Years)	13.8462	12
Total DO Consumption in Million Tonnes	0.0061	0.0045
Total HFO Consumption in Million Tonnes	0.0000	0.0000
Total LFO Consumption in Million Tonnes	0.0000	0.0000
Total CO ₂ Emissions in Million Tonnes	0.0195	0.01444
CO ₂ Emissions/GT	13.7717	14.44
CO ₂ Emissions/Deadweight	32.1612	28.88

Data (Vessels of < 5,000 GT)		
Dredgers	2024	2025
Numbers	7	6
Total GT in Millions	0.0148	0.0143
Total Deadweight in Millions	0.0170	0.016
Average Age (Years)	16.7143	20
Total DO Consumption in Million Tonnes	0.0038	0.0020
Total HFO Consumption in Million Tonnes	0.0000	0.0000
Total LFO Consumption in Million Tonnes	0.0000	0.0000
Total CO ₂ Emissions in Million Tonnes	0.0120	0.0065
CO ₂ Emissions/GT	0.8136	0.4545
CO ₂ Emissions/Deadweight	0.7084	0.406

Data (Vessels of < 5,000 GT)		
Other (Includes: Research vessels, Floating crane, Lighthouse tender, Buoy tender vessel, Security & Patrol Boat & Pipe-Laying/hook-up barge)	2024	2025
Numbers	16	18
Total GT in Millions	0.0286	0.0271
Total Deadweight in Millions	0.0160	0.0121
Average Age (Years)	23.56	21
Total DO Consumption in Million Tonnes	0.0167	0.0102
Total HFO Consumption in Million Tonnes	0.0000	0.0000
Total LFO Consumption in Million Tonnes	0.0000	0.0000
Total CO ₂ Emissions in Million Tonnes	0.0535	0.03284
CO ₂ Emissions/GT	1.8689	1.21
CO ₂ Emissions/Deadweight	3.3364	2.71

Vessels Registered as RSV

Data (Vessels of < 5,000 GT)		
RSV	2024	2025
Numbers	133	135
Total GT in Millions	0.0758	0.0753
Total Deadweight in Millions	0.0667	0.066902
Average Age (Years)	12.7293	18
Total DO Consumption in Million Tonnes	0.0452	0.0459
Total HFO Consumption in Million Tonnes	0.0000	0.0000
Total LFO Consumption in Million Tonnes	0.0001	0.00012
Total CO ₂ Emissions in Million Tonnes	0.1452	0.147
CO ₂ Emissions/GT	1.9150	1.95
CO ₂ Emissions/Deadweight	2.1773	2.19

Vessels Registered Under ICV Notification

Data (Vessels of < 5,000 GT)		
ICV	2024	2025
Numbers	18	25
Total GT in Millions	0.014817	0.01786
Total Deadweight in Millions	0.015611923	0.01749
Average Age (Years)	15.5000	14
Total DO Consumption in Million Tonnes	0.003496736	0.005509
Total HFO Consumption in Million Tonnes	0.00960199	0.00016
Total LFO Consumption in Million Tonnes	0	0
Total CO ₂ Emissions in Million Tonnes	0.014200595	0.0181
CO ₂ Emissions/GT	0.9584	1.013
CO ₂ Emissions/Deadweight	0.9096	1.03

Ships of 5,000 GT & above Certified as RSV or ICV

<i>Data (RSV & ICV)</i>	2024	2025
Numbers	19	19
Total GT in Millions	0.11	0.108
Total Deadweight in Millions	0.147	0.151
Average Age (Years)	6.8	5.37
Total CO ₂ Emissions in Million Tonnes	0.0355	0.043
CO ₂ Emissions/GT	0.32	0.40
CO ₂ Emissions/Deadweight	0.241	0.28

Shore Power Supply to Ships

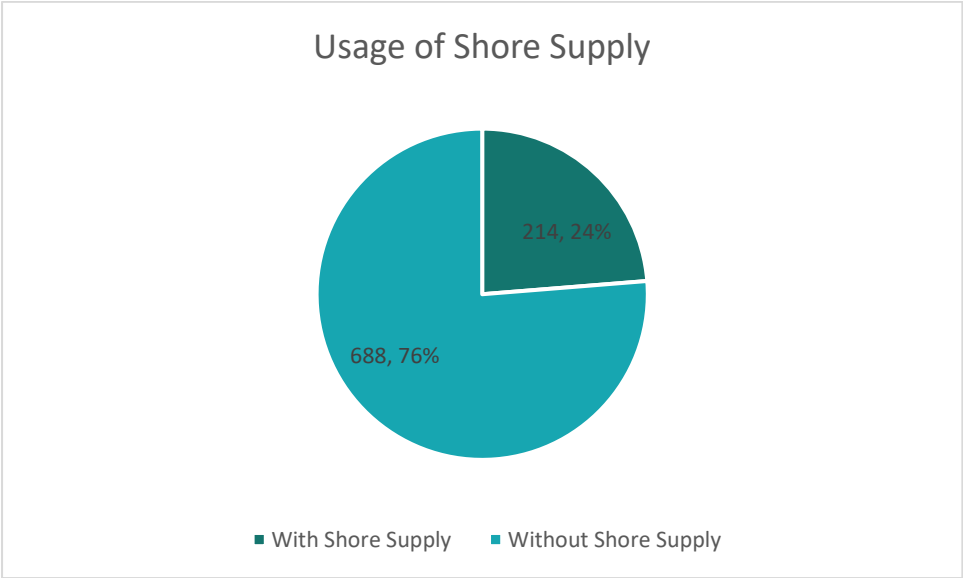
Trends in Shore Power Supply to Ships less than 5,000 GT

	No. of Ships
With Shore Supply	214
Without Shore Supply	688

Number of ships using shore power has remained steady with around 214 ships reported usage of shore power compared to 204 ships in 2024.

Distribution of Ships reporting use of Shore Power

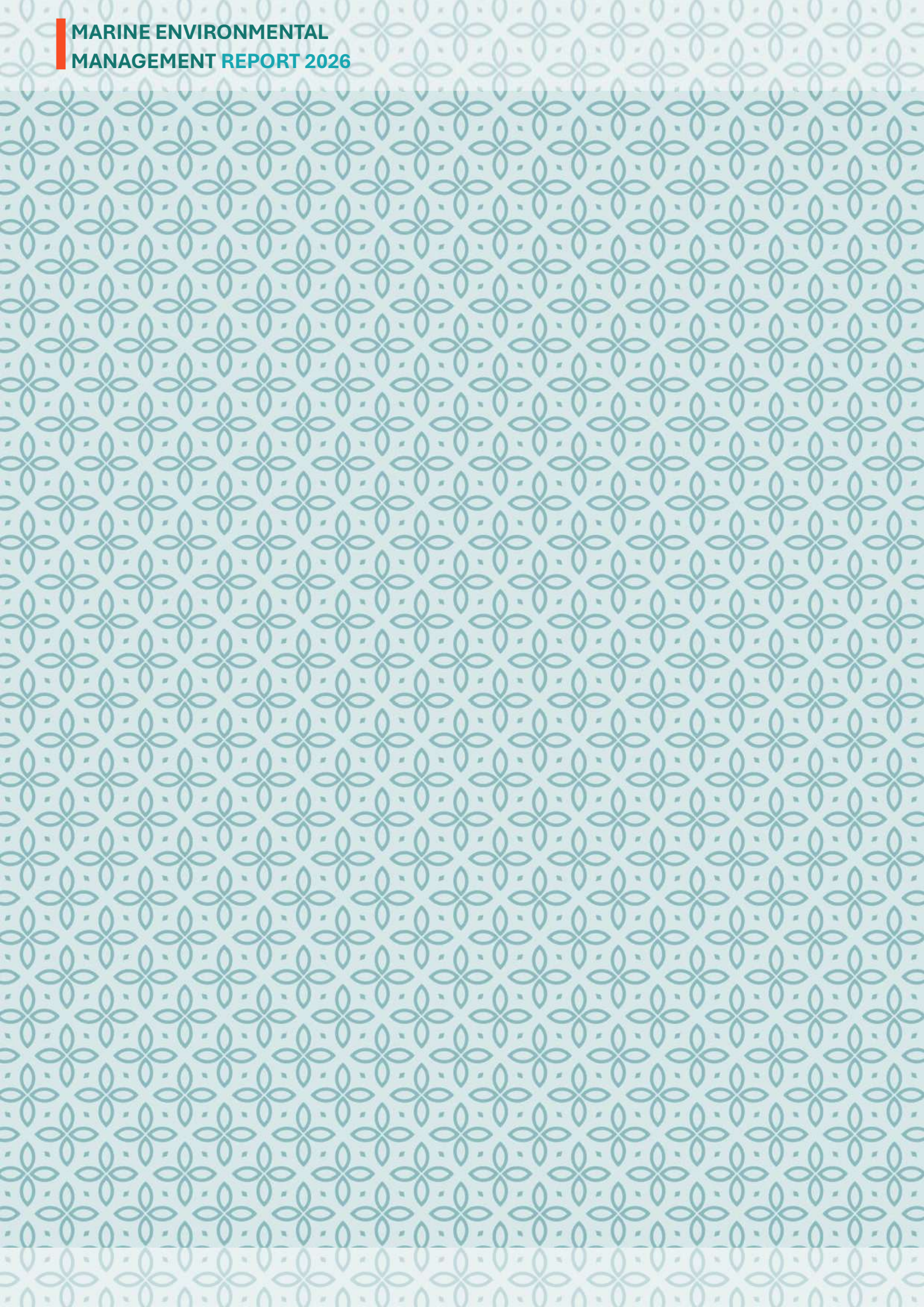
Category of Ships	Number using Shore Power
Ships of 5,000 GT & above except RSV & ICV	8
RSV & ICV Certified Ships of 5,000 GT & above	19
Ships less than 5,000 GT	187
Total	214



Ports that have reported supply of Shore Power

Port	Ship Type being supplied shore power	Maximum Power which can be supplied	Voltage and Frequency of Supply
Adani Port, Mundra	Tugs, Barges, Pilot Boats etc.	50 KW	440 V, 50 Hz, 3-Phase
Cochin Port Berth	Tugs, Barges, Pilot Boats etc	125 KW	415 V, 50 Hz, 3-Phase
	For small ships, supply at various berths at Ernakulum, Mattancheery	1250 KW & 1000 KW	
UTL own berth at Cochin Port	Own Passenger Vessels	850 KW	415 V, 50 Hz, 3-Phase
GoI Own berth at Cochin Port	Own Vessel	1400 KW	415 V, 50 Hz, 3-Phase
New Mangalore Port Authority	Indian Coast Guard Vessel, Port tugs & Pilot Launches only.	150 KW	415 V, 50 Hz, 3-Phase
Karwar Port	Indian Coast Guard Vessel & Harbour Tugs	20 KVA for Harbor Tugs 65 KVA for IGC	
Gujarat Pipavav Port Ltd	Tugs and pilot boats(Chartered Hire)	125 AMP/70 KW	415 V , 50 Hz , 3 Phase
Adani Port, Muldwarka	Tugs, Coastal ships with power demand at ports less than 200 kW	200 KW	440V, 50 Hz, 3 Phase
Offshore Oil Terminal Deendayal Port Authority	Port Owned/Hired Tugs	200 KW	440V, 50Hz, 3 Phase
Pardip Port Authority	Port Owned/Hired Tugs/Floating Crafts	Sufficient Power for small vessels	415 V , 50 Hz , 3 Phase
VOC Port Authority	Tug, Pilot Launch, Patrol Boat, small crafts and other ships: Shore Power supply provided at all Berths inside VOCPA, but provided on their request	1MVA or 1000 KVA	415 V , 50 Hz , 3 Phase
	All other Commercial Vessels at VOC 2 & 3 Berths: Shore Power supply has been provided to ships on their request since 2017. However, not made mandatory.	500 KVA	415 V , 50 Hz or 60 Hz as required , 3 Phase
Adani Gangavaram Port	Port Tugs	50 KW	415 V , 50 Hz , 3 Phase
Chennai Port Authority	Naval Vessels/Customs vessels and Port Tugs and Launches	150KW	415 V , 50 Hz , 3 Phase
Kamarajar Port Limited	Tugs, Pilot Boats, Mooring Boats	50 KW	415 V , 50 Hz , 3 Phase
Adani Krishnapatnam Port Ltd	Tugs,	50 KW	110V/220V/440V 2 Phase 50 Hz
Mumbai Port Authority	Port Crafts	150kW	415volt, 50Hz
	MbPA is in the process of providing a shore-to-ship power supply facility by June 2025 at BPX	5MVA x 2No. (proposed as on date)	6.6 KV/11 KV, 50/60 Hz

	mainly for cruise vessels. The facility can be used for other cargo vessels also.		
Jawaharlal Nehru Port Authority (JNPA)	All Container Ships and feasible oil Tankers ships	7.5 MW	6.6 KV and 0.415 KV at 50/60 Hz both
Mormugao Port Authority	Tug Boats	(i) Breakwater berth: 200 KVA - 1 No & 500 KVA - 1 No (ii) Mole berth 200 KVA - 1 No. (iii) Berth No.8 - 12 KVA - 3 Nos. (iv) Berth No.4 - 200 KVA 1 No	440v, 50 Hz
JSW Jaigarh Port Ltd	Patrol Boat	22 KW	3- Phase -440 V / 50 Hz
	Harbor Tugs	44 KW	
	Mini Bulk Carrier: Will be available from Oct'2023 Onwards	172 KW	
JSW Revdanda Port	MBCs -3000 DWT, Speed Boats, Tug Boats	200KW	3- Phase -415 V / 50 Hz



**Single Use
Plastic (SUP)
prohibition**

DGS Single Use Plastic (SUP) prohibition on board ships- *Analysis and overview*



Introduction

In recognition of the urgency to address marine plastic litter from ships, IMO adopted the Action Plan to Address Marine Plastic Litter from Ships (resolution MEPC.310(73)) and subsequently adopted the Strategy to Address Marine Plastic Litter from Ships (Resolution MEPC 341(77)).

The 2018 UNEP report titled "Single-Use Plastics – A roadmap for sustainability" report highlighted the ubiquitous nature of plastic for being one of the greatest environmental challenges that chokes marine life, transforming some marine areas into a plastic soup.

Single Use Plastics (SUP) are also known as disposable plastics like plastic bags, straws, coffee stirrers, water bottles and food packaging which are used only once before they are thrown away or recycled.

The Indian Maritime Administration, as a proactive measure, has introduced from 2 October 2019, a phased reduction on usage and carriage of materials made of single-use plastics on Indian-flagged ships. The directorate issued DGS Order No. 05 of 2019 for Prohibition on Use of Single Use Plastics Onboard Merchant Ships and a ban was imposed on single use plastic on Indian ships and foreign ships while in Indian water, as per terms and conditions of the said order.

As per the said order, Single Use Plastics as listed therein were prohibited to be used on board Indian ships and foreign ships when such ships are at a port or place in India with effect from 1st January 2020 and the list also

covers Single Use Plastics which were prohibited with Immediate effect.

The administration issued an Addendum No. I to DGS Order 5 of 2019 on 8th January 2020 which defines single-use plastics as disposable plastics like plastic bags, straws, coffee stirrers, soda and water bottles and food packaging, which are used only once before they are thrown away or recycled. It prohibited all items made of single-use plastics except those related to crew and passenger personnel effects and personal protective equipment, medicines, medicinal equipment, life-saving appliances, fire-fighting appliances, and other statutory items used on such equipment which are made up of SUP or contained in SUP.

Addendum No. I to DGS Order 5 of 2019 also requires all ships to have a plan on board showing how the ship is going to comply with the requirement of gradual phase out of SUP on board. All Indian flag ships have such plans on board, and these are verified by recognized organizations during their annual surveys and by flag State inspections.

The addendum required preparation of inventory of Single Use Plastic on board ship by 31st January 2020 or 31st March 2020 for cargo ships or passenger ships respectively.

Based on the list of inventories, the Identification, listing and prohibition of Single Use Plastic items are to be as per execution methodology and the execution schedule were detailed in the order for 50%, 75% and 90% of the items detailed in the inventory.

The execution schedule for Identification, listing & prohibition of 90% of items detailed in the inventory was 1st October 2020 for Indian/foreign flag cargo ship at an Indian Port or place and 1st December 2020 for Indian/foreign flag passenger ship at an Indian Port or place.

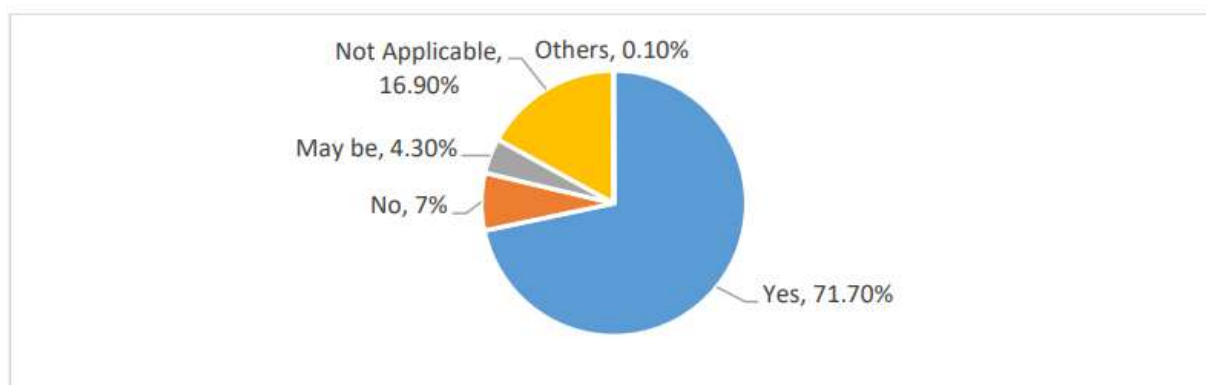
Paper submitted by India at IMO (MEPC 78)

On the impact of the proactive policy on prohibition of SUP:

India had submitted a paper at MEPC (MEPC 78/8) which shares the experience and findings of a survey conducted after two years of introduction of the measure. The survey was carried out to understand whether the measure has served its purpose of educating seafarers on the impact of SUP on the environment and reduced the usage of SUP on board ships.

The participants of the survey included Recognized Organization surveyors, ship staff, master, superintendent; company's purchase division, spare and store suppliers, etc.

The Impact of the proactive policy shows more than 70% of the participants believe that the prohibition is successful and has resulted in reduction of single-use plastics on board ships.



Impact of the prohibition on the reduction of SUP usage on ships

DGS Single Use Plastic portal:

In collaboration with the Indian Registrar of Shipping, the Directorate set up the Swachh Sagar portal of DGS Single Use Plastics Application in September 2021 which required the vessels calling and operating Indian ports to submit details concerning the use of Single Use Plastics.

The DGS Single Use Plastic portal has been used extensively by the ship owners and other users for compliance record on board and verification of Single Use Plastic prohibition by ROs and Administration.

Salient features of the portal:

The ship owners (users) can login to the portal and the login credentials can be obtained at psc-dgs@nic.in.

Once logged in, the user is directed to the homepage where he can add a ship and can enter the ship Single Use Plastic details.

The user to add ship information like Ship Name, Imo Number, Ship type, Distinct number, Flag State

Clicking on Add New SUP will give option to add Single Use Plastic Details. Users can add multiple Single Use Plastic items to ship by clicking on ADD NEW SUP.

The user can add the new Single Use Plastic Category to the existing list.

The report that is generated through the Management Information System- MIS of the portal are as below:

1. Ship details with percentage of Single Use Plastic ban achieved.
2. Ship details where Single Use Plastic ban status 'Yes'.
3. Ship details where Single Use Plastic ban status 'No'.
4. Management Information System.
5. Vendor Report.
6. Summarized details of Single Use Plastic Items.

Analysis carried out by the Administration

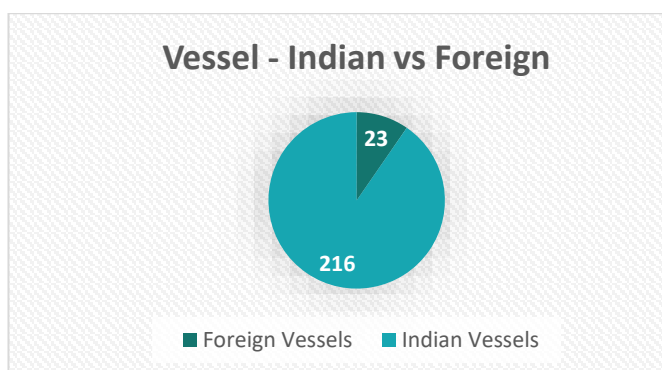
for the data/records submitted on the Swachh Sagar DGS Single Use Plastic portal:

The highlights of analysis of the data gathered for the year 2025 (from January 2025 till December 2025) are as follows:

Total number of records submitted by Ships at Indian ports by Indian flag and foreign flag ships in which a certain SUP item is replaced by an alternative SUP or banned = 289.

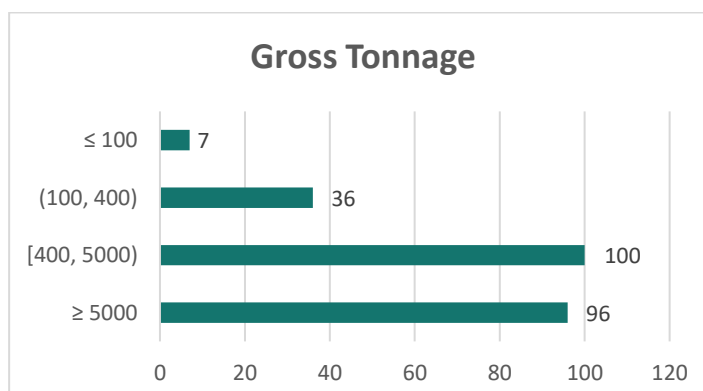
Origin of Ships reported the data

	Count	%
Foreign Vessels	23	9.62%
Indian Vessels	216	90.38%
Total	239	100%



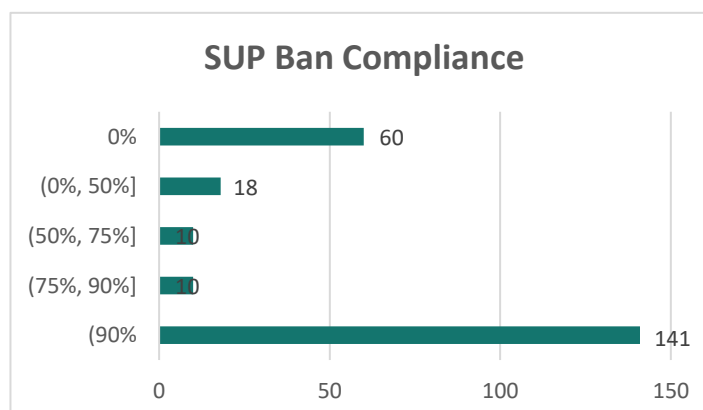
Gross Tonnage wise Records:

Gross Tonnage	%	Count
≤100	2.93%	7
(100, 400)	15.06%	36
[400, 5000)	41.84%	100
≥ 5000	40.17%	96
Total	100.00%	239



SUP ban compliance as per Circular (number of vessels)

SUP Compliance	%	Count
0%	27.34%	60
(0%, 50%]	7.27%	18
(50%, 75%]	4.15%	10
(75%, 90%]	3.11%	10
(90%)	58.13%	141
Total	100.00%	239



Distribution of Flag States as per Record Count

Major Flag States	Count	%
Bahamas	1	0.42%
China	3	1.26%
Cyprus	1	0.42%
Greece	2	0.84%
Hong Kong	1	0.42%
India	216	90.38%
Libya	1	0.42%
Malta	2	0.84%
Norway	2	0.84%
Portugal	1	0.42%
Republic of Korea	1	0.42%
Republic of Liberia	1	0.42%
Republic of Marshall Islands	4	1.67%
Republic of Panama	1	0.42%
Singapore	1	0.42%
Sint Maarten	1	0.42%
Total Records	239	100.0%

Inferences from the above analysis:

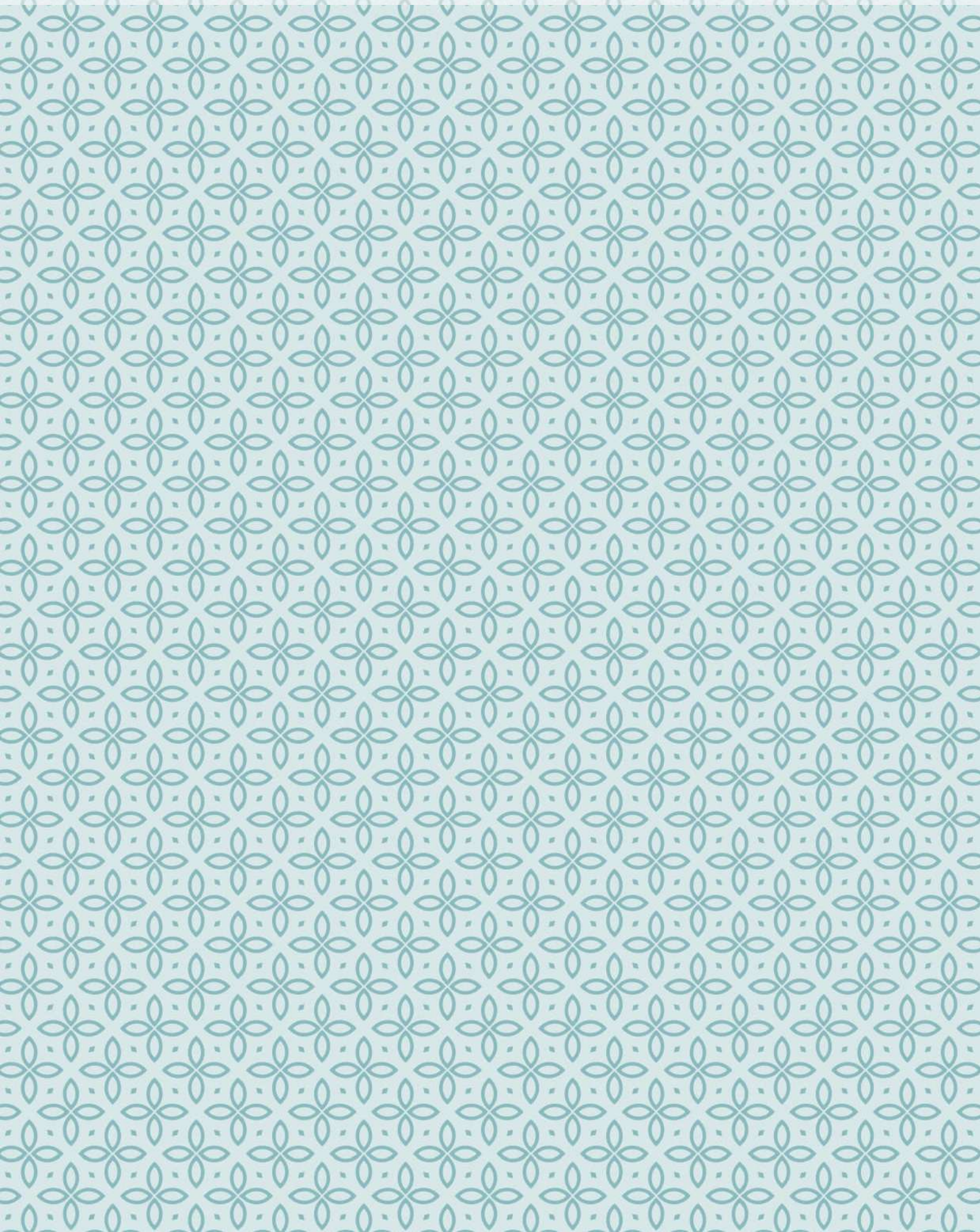
The data indicates substantial awareness and adoption of measures to reduce single-use plastics, including the replacement of prohibited items with alternative materials.

Name of Single Use Plastic Items which got replaced by new items totally by Ships on voluntary basis for compliance with the requirements of SUP prohibition:

Item Name	Replaced Details
Plastic tumbler	Replaced with glass and steel tumbler
Plastic spoon	Replaced with metal spoons
Teacups	Replaced with paper teacups
Plastic container	Refill packs ordered where available. Smaller capacity plastic containers are replaced with larger capacity containers to minimize use of plastic
Plastic waste bag	Plastic waste bags replaced with bio-degradable plastic waste bags
Package material of various provision items	Replaced with paper/jute bags.
Packaged food/spice products	Replaced with paper bags.
Plastic stationery item	Replaced with paper bags.
Carry bags	Replaced with paper bags
Chemical cans	Replaced with large 200 ltr metal drums.
Plastic packing material from store suppliers	Plastic packing material replace with paper bags. Packing material returned to suppliers.
Plastic garbage bins	Replaced with metal garbage bins
Plastic container	Replaced with stainless steel container.
Plastic bowl	Replaced with ss bowl
Waste bag	Replaced with bio-degradable waste bag
Plastic utensils	Replace still utensils
Plastics cups	Replace paper cups
Old lube oil barrels	Replace by steel barrels
Plastic straw & stirrers	Replace by steel straw & stirrers
Plastic plates	Replace by still plates
Plastics drum	Replace by still drum
Plastics drinking bottles (1 litre)	Replace by 20 ltr bottles
Synthetic fevicol bottles	Replaced with steel container
Plastic pouches	Replaced with paper pouches
Old plastic identity cards	Replaced with paper cards
Plastics disposable gloves	Replaced as cotton type

Cutlery plates	Replaced with ceramic plates
Microwave dishes	Replaced with ceramic dishes
Plastic used in various packing of ship spares	Stores shall be checked ashore prior to supply and plastic packing shall be replaced with paper or similar bio degradable material
Sause sachets	Replaced with sauce glass bottles.
Plastic spoons	Disposable plastic spoons replaced with wooden spoons.
Oil storing tanks	Replaced the plastic drums with the metal drums for oil storing
Plastic waste bag	Replaced with paper bags
Pickle	Replaced with glass bottle
Plastic food warping foil	Replaced with aluminum foil
Plastic tumbler	Replaced with glass and steel tumbler
Disposable drums in cabin & common spaces	Replaced with Reusable Metal drums
Food packing films	Replaced with aluminum foil.
Waste bag	Replaced with paper bags
Rice packet	Replaced with steel drum with lid
Plastic polithing for vegetables	Replaced with paper bag
Surf packet	Replaced with glass jar
Surf packet	Replaced with glass jar
Soft drink bottle	Replaced with glass bottle
Candy sticks and icecream sticks	Replaced with wooden sticks
Plastic tea/cofee stirrers	Replaced with wood
Plastic tray	Replaced with steel trays
Plastic disposable oil bottles	Replaced with steel tins
Plastic knife for party	Replaced with steel knife
Plastic refils for hand wash	Replaced with reusable disposers
Thermocol	Replaced with paper stuffed between objects
Plastic straw	Replaced with paper straw
Sweet boxes	Replaced with paper boxes
Plastic garbage cover	Replaced with paper bags
Plastic buckets	Replaced with neoprene rubber buckets

Detergent powder plastic packets	Replaced with jute bags
Plastic folders & files	Replaced with cardboard files
Plastic polythene for vegetable	Replaced with paper bag
Surf packet	Replaced with glass jar
Soft drink bottle	Replaced with glass bottle
Flour bag	Replace with cloth bag
Waste plastic bags in packets	Plastic bags will be replaced by biodegradable paper bags
Cups	Replaced with glass
Plastics cotton buds	Replace by wood buds
Plastic pouches	Replace by paper paunches
Plastic jar	Replaced with ss jar
Plastic Garbage drums	Replaced with metal drums
Plastic packing material	Replaced with cartons
Rice/flour bag	Replaced with steel container
Noodles packaging	Replaced with paper wrapping
Sliced bread packaging	Replaced with paper wrapping
Ice Cream packing	Replaced with paper packaging
Plastic seafood packing	Replaced with cotton bags
Pulses packing	Replaced with cotton bag
Cable ties	Replaced with stainless steel cable ties
Shoe cover	Replaced with biodegradable shoe covers
Water bottle 1 litre.	Replaced with 20 ltrs. Water bottle(reusable)
Shoe cover	Replaced with biodegradable shoe covers
Plastic tumbler	Replaced with glass & stell tumbler
Plastic decorative items	Prohibited onboard. Replaced by paper decorative items
Plastic linings	Replaced with non-plastic
Plastic waste bag	Plastic waste bags replaced with biodegradable waste bags



Port Reception Facilities Report

International Requirements

The objective of the MARPOL Convention is to reduce the volumes of harmful materials entering the world's ocean and marine environment. To achieve this goal, the Convention and its Annexes contain requirements to control the accidental or deliberate discharge of substances such as oil, chemical, sewage and garbage.

The six technical Annexes of MARPOL contain detailed regulations with respect to the handling on board ships and in respect to any discharge into the sea or release into the atmosphere of six main groups of harmful substances:

- i. Petroleum in any form (Annexure I);
- ii. Noxious Liquid Substances (NLS) carried in bulk (Annexure II);
- iii. Harmful substances carried in packaged form (Annexure III);
- iv. Sewage (Annexure IV); Garbage (Annexure V); and
- v. Air emissions (Annexure VI)

MARPOL imposes numerous operational and technical requirements on ships. MARPOL also imposes one important obligation to the Government of each Party, which is to ensure the provision for reception of ship-generated residues and garbage that cannot be discharged into the sea. MARPOL requires that residues that cannot be discharged into the sea in accordance with relevant requirements shall be delivered to port reception facilities. It also requires that port States shall ensure the provision of reception facilities, which must be adequate to meet the needs of ships, without causing undue delay to them. The relevant regulations on port reception facilities are:

- Oily residues (from ER or from cargo): Annexure I, regulation 38;
- NLS residues: Annexure II, regulation 18;
- Sewage: Annexure IV, regulation 12;
- Garbage: Annexure V, regulation 7; and
- Annexure VI wastes & residues: regulation 17.

The word adequate was deliberated at Marine Environmental Protection Committee of IMO and Resolution 83(44) [Guidelines for Ensuring Adequacy of Port Reception Facilities] defines it as those facilities provided by visiting port, which:

- i. mariners use;
- ii. fully meet the needs of the ships regularly using them;
- iii. do not provide mariners with a disincentive to use them; and
- iv. contribute to the improvement of the marine environment.

It also states that the facilities provided by the port must:

- i. meet the needs of the ships normally using the port; and
- ii. allow for the ultimate disposal of ships' wastes to take place in an environmentally appropriate way.

Indian Regulatory Framework: Port Reception Facilities

The Indian Regulatory framework adequately covers the provision of Port Reception facilities in accordance with MARPOL and other IMO Conventions, such as the Anti-Fouling Convention. The law also covers the end-disposal of waste received from ships. The various provisions are detailed in paragraphs below.

Section 356-I [Oil reception facilities at ports in India]: It may be noted that the word Oil reception Facilities has been substituted by word Reception Facilities by 2003 amendments to the Merchant Shipping Act, 1958 provides substantive provisions related to Port Reception Facilities as below:

- i. **Sub-section (1) gives duty and Powers to provide Port Reception Facilities:** Notwithstanding anything contained in any other law for the time being in force, in respect of every port in India, the powers of the port authority shall include the power to provide [The word reception facilities].
- ii. **Sub-Section 4 defines Port Authorities:** The Central Government may, by notification in the Official Gazette, specify the ports in India having reception facilities in accordance with the requirements of the Convention.

Explanation.—For the purpose of this section, “port authority” means:

- (a) in relation to any major port, the Board of Trustees in respect of that port constituted under any law for the time being in force;
- (b) in relation to any other port, the Conservator of the Port, within the meaning of section 7 of the Indian Ports Act, 1908 (15 of 1908).

The following Merchant Shipping Rules specify provision related to Port Reception facilities at Indian Ports:

- i. Rule 38, Chapter VI of MS (Prevention of Pollution by Oil from Ships) Rules 2010.
- ii. Rule 18, Chapter VIII of Merchant Shipping (Control of Pollution by Noxious Liquid Substance in Bulk) Rules, 2010. (MARPOL -Annexure II)
- iii. Rule 12 of Merchant Shipping (Prevention of Pollution by Sewage from ships) Rules, 2010. (Annexure-IV)
- iv. Rule 7 of Merchant Shipping (Prevention of Pollution by Garbage from Ships) Rules, 2010. (Annexure-V)

The Ministry of Environment and Forest is the nodal agency in the administrative structure of the Central Government of development and implementation of Rules related to end disposal of waste ashore. Some the key rules are:

- i. The Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 established under the provision of the Environment Protection Act.
- ii. The Solid Waste Management Rules 2016.
- iii. Plastic Waste Management Rules, 2016
- iv. Batteries Waste Management Rules 2001
- v. E-Waste Management Rules, 2016

Efforts by DGMA in ensuring adequate Port Reception Facilities

MEPC had agreed that “to achieve adequacy, the port should have regard to the operational needs of users and provide reception facilities for the types and quantities of wastes from ships normally using the port”. Resolution MEPC 83(44) further elaborates the Operational need by stating:

- i. **Mutually Agreed Time of Transfer:** The time of transfer of waste should be mutually agreed upon and transfer of waste should take place during the cargo-handling working hours of the port unless the ship’s normal call at the port is not at a time within this period.
- ii. **Advance Notification:** For logistical reasons, the providers of waste reception facilities may require advance notification of the intention to use facilities, particularly if independent waste contractors provide some or all of the port’s waste collection services. Providing advance notification of the type and quantity of wastes on board for delivery to a reception facility should minimise the risk of undue delay to the ship. Once alerted to the volumes and types of wastes expected, the waste facility provider will be better able to meet the needs of the ship at a mutually acceptable time.

Resolution MEPC 83 (44) also stresses the importance on the following aspects to ensure adequate port reception facilities:

- i. **Review of Data Collected through Advance Notification:** The universal application of an advance notification or similar procedure should ensure that ports receive a regular supply of documented material. They may use this to monitor the provision and adequacy of their facilities, which will greatly assist the port waste management planning and review process.
- ii. **Disposal of Wastes:** The facilities provided by the port must allow for the ultimate disposal of ships’ wastes to take place in an environmentally appropriate way.

The Directorate General of Shipping has developed an online module named “Swachh Sagar” to ensure the following:

- i. The ships are able to raise Advance Notification for Port Reception Facilities to visiting ports.
- ii. The ships can choose vendor, fix the date, and time for collection of waste with the selected vendors.
- iii. The vendor is required to upload the receipt of waste received and the proof/ receipt that the waste is disposed in accordance with rules.

The Directorate General of Maritime Administration has also been annually assessing the Port Reception Facilities at various ports across India. This year onwards, an Online digital platform has been developed to ensure that all assessments are carried out using this digital platform so that data can be analysed and improvements suggested.

The DGS Circulars related to Swachh Sagar are:

- i. DGS Order No. 02 of 2018: Assessment of Port Reception Facilities.
- ii. DGS Circular 06 of 2018: Utilization of Centralized Port Reception Facilities: Swachh Sagar.
- iii. Addendum to Engineering Circular No. 06 of 2018.
- iv. Standard Operating Procedure for Assessment of Adequacy of a Port Reception Facility dated 06.03.2018

Review of Data on Swachh Sagar

Trends in Gross Performance Indicators: The key gross performance indicators:

- i. Number of Ports Registered on Swachh Sagar
- ii. Vendor count
- iii. Number of Advanced Notifications (ANF) which got converted into waste delivery:
- iv. Number of Waste Delivery for which waste receipt is uploaded

Attributes	2019	2021	2022	2024	2025
Number of Ports Registered on Swachh Sagar	46	63	66	68	77
Number of ANFs filled up by Ships	12949	40862	42572	47077	49034
Engaged ANFs	2502	15410	16207	35219	37233
Vendor Count	241	476	402	469	388
Number of Reception Receipts Uploaded	772	9145	10754	14402	14235

Gross Indicators for the Calendar Year 2025

Number of Ports registered on the Swachh Sagar	77	Number of Ports on Which ANF raised	77
Number of Ports which supplied Port Reception Facilities	67	Total Number of Advanced Notifications raised.	49175
Number of ANF which led to discharge of waste to PRF	40860	Number of Receipts Uploaded	14235

Inferences

1. Is Non-Conversion of Advance Notification (ANF) an indication about non-availability or inadequacy of Port Reception Facilities?
No, because raising of Advance Notification is mandatory irrespective of whether the ship intends to deliver waste or not at visiting port.
2. Is the conversion rate of ANF to delivery of waste is an indication of adequacy of port reception facilities?
Yes, because a higher conversion rate indirectly indicates that the port facilitate the ships and the facilities are adequate.

In 2025, approximately 38% of Advance Notifications resulted in recorded waste delivery. As Advance Notifications are mandatory irrespective of whether waste is intended to be delivered, this indicator should be interpreted as a measure of waste-delivery engagement rather than as a direct measure of PRF adequacy.

% ANF Conversion = (ANF Converted to Waste Delivery/Number of ANF Raised) x 100 %

% Waste Delivery Receipt Uploaded = (Number of Waste Delivery Receipt Uploaded/ ANF Converted to Waste Delivery) x 100 %

The data on ports with respect to conversion of ANF to waste deliver and uploading of waste delivery receipt is as below:

MINOR PORTS			
Port Name	No. of ANFs	No. of Reception Receipts	No. of Recycling Receipts
Adani Hazira Port Ltd	1454	227	110
Adani Krishnapatnam Port Ltd (AKPL)	1185	133	133
ADANI PETRONET DAHEJ PORT PVT LTD	176	15	0
Adani Ports and SEZ Limited Mundra	4531	503	98
Ambuja Cement Ltd - MULDWARKA	845	2	0
AMBUJA MAGDALLA JETTY	429	360	349
AMBUJA ULWA JETTY	518	531	61
AMNS Ports Hazira Ltd.	462	39	19
Angre Port Pvt Ltd	79	0	0
Bedi Group of Ports - owned by GMB	29	0	0
Beypore Port	65	55	27
Bharat Petroleum Corporation Ltd, SPM - Sikka	209	0	0
Bhavnagar Group of Ports -Owned by GMB	37	1	0
Captain of Ports GOA	790	0	0
Chemplast Cuddalore Vinyls Terminal	1	0	0
CHHARA Port	14	0	0
Dahej RORO Jetty owned by GMB	2	0	0
Dahej Group of Ports - Privately owned terminals	767	68	4
Dhamra Port Company Limited	693	84	29
Dighi Port Limited	39	0	0
Ennore Minor Port -Coromandel	50	0	0
Essar Bulk Terminal-Salaya	210	65	53
Finolex Terminal Ratnagiri	29	0	0
Gangavaram Port	697	114	109
Gopalpur Ports Ltd	123	19	0
GSFC – Sikka Jetty	7	0	0
Gujarat Pipavav Port Ltd	888	30	6
Hazira (Surat) Port	471	3	0
JSW Dharamtar Port	683	121	75
JSW JAIGARH PORT LIMITED	458	119	119
Kakinada Anchorage Port (Government Of Andhra Pradesh)	321	89	33
Kakinada Deep Water Port (sea port)	1160	250	196
KARAIKAL PORT PRIVATE LIMITED	258	16	118
Karanja Port	60	18	11
Karwar Port	82	0	0
Kattupalli Port-Ennore Chennai	538	6	4
KLL LNG terminal Dabhol	32	0	0
KMB Vizhinjam	7	3	0

Kollam Port	9	6	6
Magdalla Group of Ports -owned by GMB	262	9	0
MARS- dummy port for trials	1	0	0
NAV LAKHI GROUP OF PORTS (owned by GMB)	7	0	0
Nhava Supply Base	1738	1069	1043
Okha Group of Ports -Owned by GMB	36	14	13
PNP Port, Dharamtar	1	0	0
Porbandar Group of Ports -owned by GMB	30	5	0
Port Management Board, Andaman and Nicobar Islands	2356	3717	3714
Redi Port	7	0	0
Reliance Hazira Shipping and Offshore Division	202	198	198
Revdanda JSW Steel (Salav) Ltd	5	0	0
Sanghi Port	8	6	1
Sikka Ports and Terminals Ltd.	760	134	5
The Vizhinjam Port	629	194	1
UTCL Captive Berth - pipavav	244	2	0

Taking into account that more than 2000 ANF raised in Calendar Year 2025, the best performing ports in terms of ANF conversion to waste delivery and uploading of waste receipt continues to be **Port Management Board, Andaman and Nicobar Islands**.

Port Name	No. of ANFs	No. of Reception Receipts	No. of Recycling Receipts
Chennai Port Trust	2018	191	154
Cochin Port Trust	1628	835	49
Deendayal or Kandla Port Trust	2215	1187	267
Haldia Dock Complex - KoPT.	2163	147	143
Jawaharlal Nehru Port trust(JNPT)	3776	4	0
KAMARAJAR PORT LIMITED	900	105	38
Mormugao Port Trust	510	28	27
Mumbai Port Trust	3065	781	98
New Manglore Port Trust (NMPT)	1563	344	147
Paradip Port Trust	2709	555	533
Syama Prasad Mookerjee Port, Kolkata - Kolkata Dock System	461	94	93
V. O. Chidambaranar Port Trust Tuticorin	1069	1	1
Visakhapatnam Port Trust	2404	1738	1736

Taking into account that more than 2000 ANF raised in Calendar Year 2025, the best performing ports in terms of ANF conversion to waste delivery and uploading of waste receipt is **Visakhapatnam Port Authority**.

Port, which have received MARPOL Annex VI Waste in 2025

1. Ozone Depleting Substances

Sr. No.	Port Name
1	Adani Hazira Port Ltd
2	Adani Krishnapatnam Port Ltd (AKPL)
3	ADANI PETRONET DAHEJ PORT PVT LTD
4	Adani Ports and SEZ Limited Mundra
5	Captain of Ports GOA
6	Chennai Port Trust
7	Deendayal or Kandla Port Trust
8	Dhamra Port Company Limited
9	Gangavaram Port
10	Haldia Dock Complex - KoPT.
11	Hazira (Surat) Port
12	Jawaharlal Nehru Port trust(JNPT)
13	JSW Dharamtar Port
14	JSW JAIGARH PORT LIMITED
15	Kakinada Deep Water Port (sea port)
16	KAMARAJAR PORT LIMITED
17	Kattupalli Port-Ennore Chennai
18	Magdalla Group of Ports -owned by GMB
19	Mormugao Port Trust
20	Mumbai Port Trust
21	New Manglore Port Trust (NMPT)
22	Paradip Port Trust
23	Sikka Ports and Terminals Ltd.
24	Syama Prasad Mookerjee Port, Kolkata - Kolkata Dock System
25	UTCL Captive Berth - pipavav
26	V. O. Chidambaranar Port Trust Tuticorin
27	Visakhapatnam Port Trust

Ports which Received Exhaust Gas Scrubber Residues

Sr. No	Port Name
1	Adani Hazira Port Ltd
2	Adani Krishnapatnam Port Ltd (AKPL)
3	Adani Ports and SEZ Limited Mundra
4	Chennai Port Trust
5	Dahej Group of Ports - Privately owned terminals
6	Deendayal or Kandla Port Trust
7	Dhamra Port Company Limited
8	Finolex Terminal Ratnagiri
9	Gangavaram Port
10	Hazira (Surat) Port
11	Jawaharlal Nehru Port trust(JNPT)
12	JSW JAIGARH PORT LIMITED
13	Kakinada Deep Water Port (sea port)
14	KAMARAJAR PORT LIMITED
15	KARAIKAL PORT PRIVATE LIMITED
16	Kattupalli Port-Ennore Chennai
17	Magdalla Group of Ports -owned by GMB
18	Mormugao Port Trust
19	Mumbai Port Trust
20	New Manglore Port Trust (NMPT)
21	Paradip Port Trust
22	Sikka Ports and Terminals Ltd.
23	Syama Prasad Mookerjee Port, Kolkata - Kolkata Dock System
24	UTCL Captive Berth - pipavav
25	V. O. Chidambaranar Port Trust Tuticorin
26	Visakhapatnam Port Trust

Port with more than 100 ANF and more than 90% of raised ANF resulting in Delivery of Waste

There are 43 ports with more than 100 ANFs Raised. 15 ports have reported more than 90% raised ANF converted to Waste Delivery (Engagements)

Ambuja Cement Ltd - MULDWARKA
AMBUJA MAGDALLA JETTY
AMBUJA ULWA JETTY
Cochin Port Trust
Deendayal or Kandla Port Trust
Essar Bulk Terminal-Salaya
Gopalpur Ports Ltd
JSW Dharamtar Port
Kakinada Anchorage Port (Government Of Andhra Pradesh)
KARAIKAL PORT PRIVATE LIMITED
Mormugao Port Trust
Nhava Supply Base
Port Management Board, Andaman and Nicobar Islands
Reliance Hazira Shipping and Offshore Division
Visakhapatnam Port Trust

Port with more than 100 ANF and between 50-90% of raised ANF resulting in Delivery of Waste

There are 44 ports with more than 100 ANFs Raised. 10 ports have 50%-90% raised ANF converted to Waste Delivery (Engagements)

Adani Hazira Port Ltd
ADANI PETRONET DAHEJ PORT PVT LTD
AMNS Ports Hazira Ltd.
Dhamra Port Company Limited
JSW JAIGARH PORT LIMITED
Kakinada Deep Water Port (sea port)
KAMARAJAR PORT LIMITED
Mumbai Port Trust
New Mangalore Port Trust (NMPT)
Sikka Ports and Terminals Ltd.

Amount and Type of Waste Discharged at Indian Ports

Type of Waste	Quantity Discharged	Type of Waste	Quantity Discharged
Amount of Oily Bilge Water delivered to PRF	292850.4m ³	Amount of Oily Residues Sludge delivered to PRF	321862.65 m ³
Amount of Oily Tank Washings delivered to PRF	566363.27 m ³	Amount of Dirty Ballast water delivered to PRF	344319.53 m ³
Scale and Sludge from Tank Cleaning	162704.01 m ³	Annexure II: Category X	481389.8 m ³
Annexure II: Category Y	388399.37 m ³	Annexure II: Category Z	363124.56 m ³
Annexure IV: Sewage	0 m ³	Plastics	25146.8 m ³
Food Waste	5487.97 m ³	Domestic Waste	25564.23 m ³
Cooking Oil	5679.01 m ³	Incinerator Ashes	1767.71 m ³
Operational Waste	12425.21 m ³	Cargo Residues	40344.33 m ³
Animal Carcasses	201.06 m ³	Fishing Gear	256.3 m ³
E-Waste	1674.4 m ³	Quarantine Waste	443.78 m ³
Ozone Depleting Substances	3322.98 m ³	Exhaust Gas Cleaning Residues	2585.05 m ³

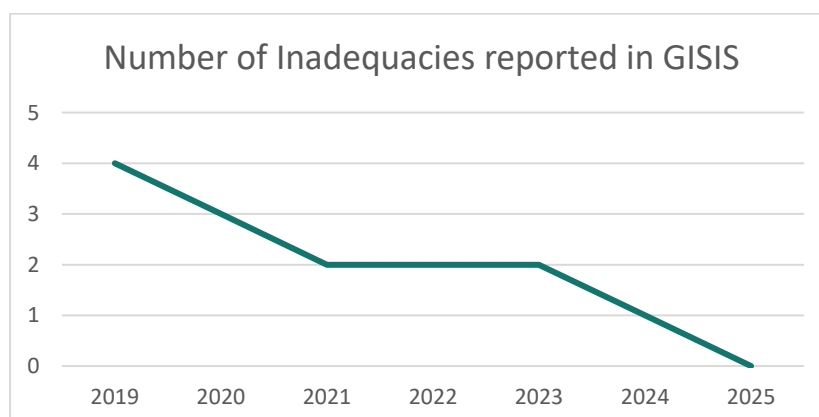
Ports where less than 10 ANF raised

Port Name	ANF Count
AEML Dahanu Port - Adani	0
Azhikkal port	0
Bhogat Port, Vedanta Limited	0
Chemplast Cuddalore Vinyls Terminal	1
Chemplast Sanmar Limited Terminal Karaikal	0
Dahej RORO Jetty owned by GMB	2
GSFC – Sikka Jetty	7
KMB Vizhinjam	7
Kollam Port	9
Kribhco Jetty at Hazira	0
Mandvi Group of Ports -owned by GMB	0
MARS- dummy port for trials	1
NAV LAKHI GROUP OF PORTS (owned by GMB)	7
PNP Port, Dharamtar	2
Redi Port	7
Revdanda JSW Steel (Salav) Ltd	4
Sanghi Port	8
Thirukkadaiyur Port	0
Udangudi Port	0
UltraTech Captive Jetty Sewagram	0

Data Analysis of Reports of Inadequacy Logged-In on IMO GISIS

In 2025, NIL inadequacies with respect to port reception facilities were reported in IMO GISIS portal, which is the first such achievement in last 5 years

Trends in Inadequacy Reports Registered on GISIS



Assessment of Port Reception Facilities

The DGS Order 02 of 2018 was issued on 21 February 2018 to make mandatory the yearly assessment of port reception facilities.

The common deficiencies found were:

- i. Vendor demanding higher payment charges than those declared on port website.
- ii. End disposal certificates not uploaded on the Swachh Sagar Portal.
- iii. No disposal facility for Annexure IV waste.
- iv. Limited number of vendors approved by Port.
- v. Availability of Waste Management Plan.
- vi. Vendor providing reception facilities without being hired through the Swachh Sagar Portal.
- vii. Assessment of PRF demand not carried out.
- viii. Vendors collecting waste other than what they are approved for by the port.
- ix. No end disposal receipts of waste available.
- x. Expired port authorization of PRF Vendors.
- xi. Non-availability of Port Procedures for the collection and disposal of waste.
- xii. No internal audits conducted.
- xiii. No specific written Port procedures concerning disposal of waste available and No Waste Management Plan available; procedure for classifying waste into waste and hazardous waste and the method of disposal; The responsibilities of all the agencies/persons involved in providing port reception facilities to _____ be _____ defined.
No specific written Procedures for licensing and monitoring of Private contractor for specific job in the end end waste receiving and management system (The licensing procedures to include authorization as required under Hazardous Rules, 2016).
- xiv. No internal Audits/Internal Inspection reports of licensed contractors available for review.
- xv. Swachh Sagar Portal is not being fully utilized for waste disposal: Fees charged by the vendor /CBM of waste disposal not updated; Vendor engagement for disposal of waste not done online through the Swachh Sagar Portal.
- xvi.

Ballast Water Convention

Introduction

The International Convention for the control and management of ships' ballast water and sediment was adopted in the year 2004. The Convention finally achieved the required numbers of ratification and entered into force in 2017. The prolonged delay between the adoption and entering into force of the convention was a marked period of uncertainty for ship owners and the Ballast Water equipment manufacturers. In anticipation of the BWM Convention entering into force, the BWMS manufacturers sought the Type Approval (TA) for their plant as per the G8 Guidelines and by the year 2017, more than 50 Type approved BWMS were available in the market for owners to choose from.

Taking a proactive step towards biodiversity conservation, the Directorate issued circulars 2 of 2016, 32 of 2020 and 16 of 2022, encouraging the Indian ship owners to follow the BW convention requirements. Over the last couple of years, the Indian flagged ships and vessels calling Indian ports have undertaken measures to implement the Ballast Water Convention requirements through the installation of approved Ballast Water Management Systems and carrying out operations to comply with D1 (Ballast Water Exchange) and D2 (Ballast Water Treatment). However, the industry received feedback related to the failures or inoperability of the BWMS in certain conditions. The Indian port state inspection presently does not inspect the vessels for Ballast water compliance. With the MEPC finalizing the Compliance Monitoring Devices' (CMDs) approval process for indicative testing of the ballast water, it is envisaged that in future, the PSC inspection will entail indicative testing of the ships ballast water discharges in ports. Recognizing the importance of the proper operations of the BWMS and higher degree of confidence in the BWMS being able to meet the D2 compliance, the directorate had initiated a study to map the challenges in BWMS operations.

Also, as per the Paris MOU statistics, it was evident that the maximum deficiencies are noted in the Recordkeeping section concerning the Ballast Water Record Book entries.

This paper puts forward the study carried out by the team under the guidance of the directorate in the following paragraphs.

Data on BWMS- Phase 1:

In collaboration with the Indian Registrar of Shipping, the Directorate set up the Swachh Sagar portal on Ballast Water Reporting in September 2022, which required the vessels calling and operating Indian ports to submit details concerning the Ballast Water operations. The highlights of the data gathered and analyzed during October 2022 to January 2023 are:

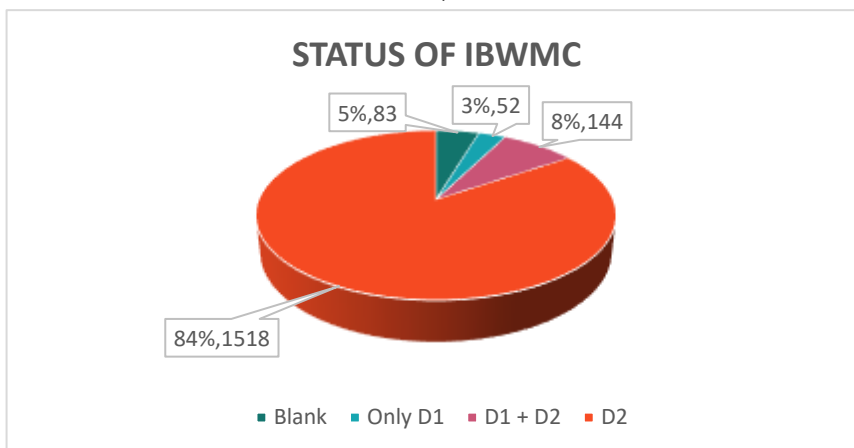
- i. More than 2700 validated entries from vessels.
- ii. A Total of 1145 vessels reported, of which 10% were Indian Flagged vessels.
- iii. The Chlorination and UV systems adopting BWMS were noted to be the most preferred technology, covering more than 90% of the installations.
- iv. Containers were the maximum reported vessels accounting for 35% and are noted not to carry out Ballasting/ deballasting operations.
- v. The countries where the vessels originate their voyage to arrive at India was analyzed to understand the possible source of Ballast water.

Ships	Count
Total ships reported	1769
Ships with BWTS Installed	1189
Installed with BWMS %	67.21%

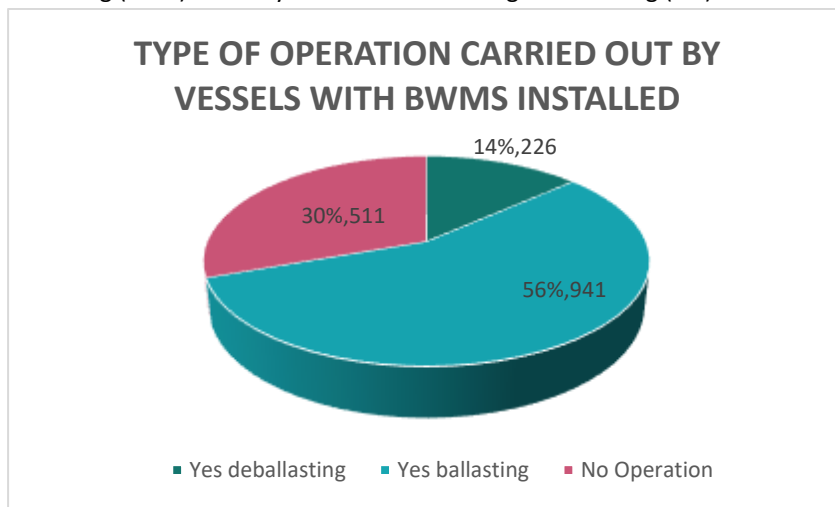
Data on BWMS inoperability – Phase 2:

Based on the experience gained through the initial data, the Swachh Sagar portal survey questions were realigned to focus on the BWMS failures, and the new questionnaire was rolled out in July 2023. The data received from the vessels in August and September 2023 was further analyzed to provide greater insights into the Malfunctioning of the BWMS.

- i. A Total of around 1400 entries received in 2 months.
- ii. A total of 515 vessels reported.
- iii. 455 vessels were installed with BWMS, which accounts for 88% of the vessels.

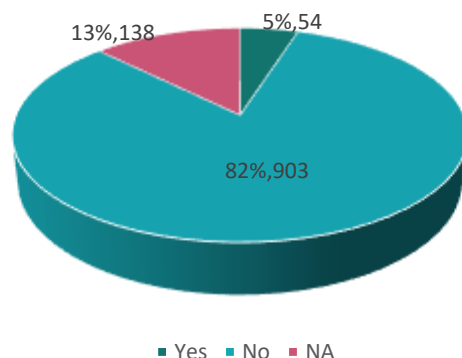


- iv. 17 vessels reported to have faced issues during BWMS operations. 15 vessels faced issues during Ballasting (3.1%) and only 2 faced issues during Deballasting (1%).



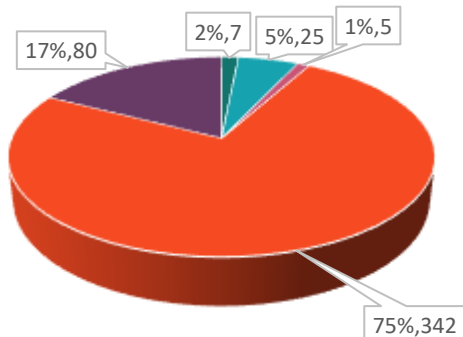
- v. Majority of the vessels operating in the Indian ports, including those of Dahej, Kandla, Hazira and Haldia, have reported no issues in carrying out Ballasting or Deballasting operations.

PROBLEM REPORTED DURING BALLASTING



■ Yes ■ No ■ NA

COUNT OF UNIT OF MALFUNCTION



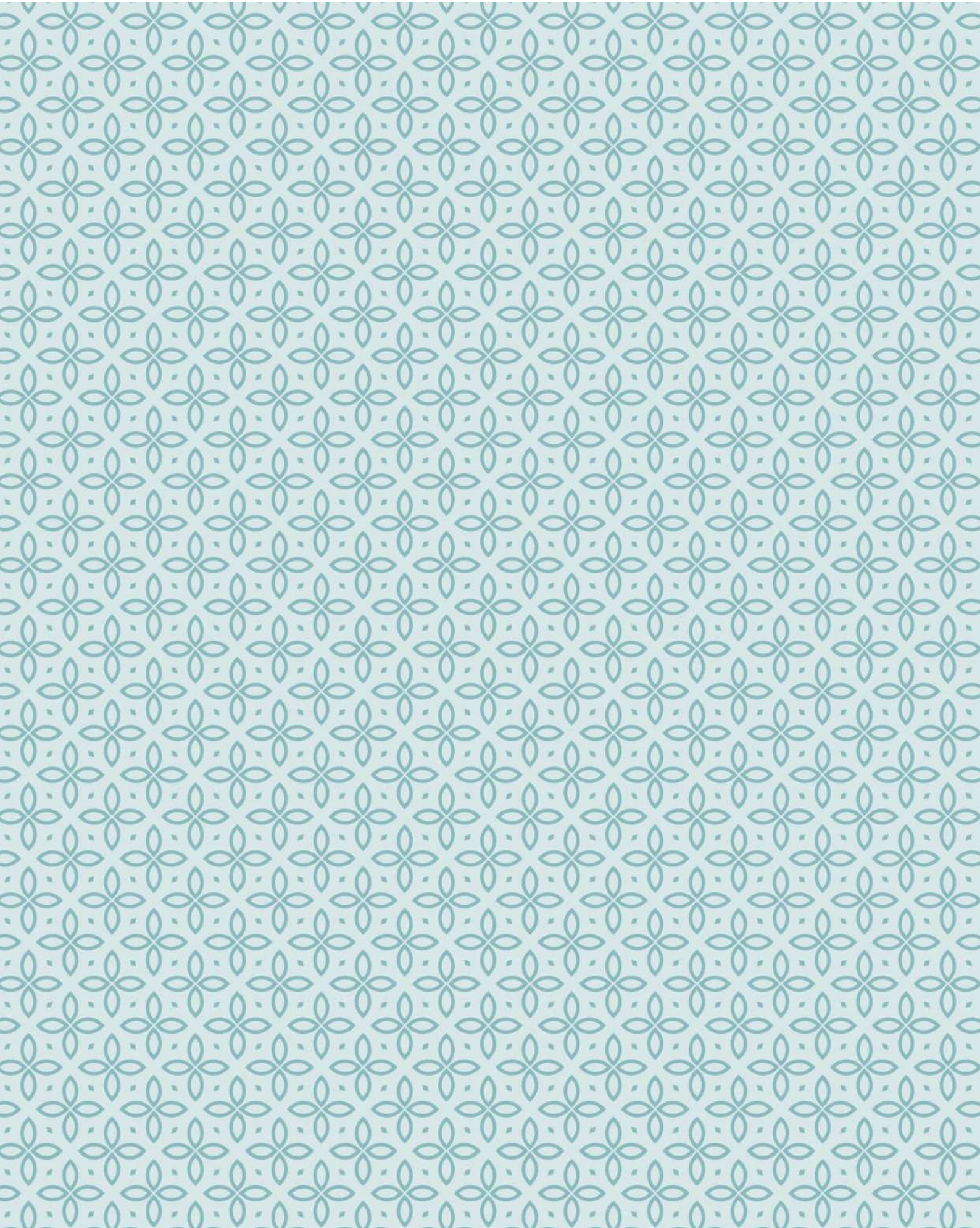
■ Control & Automation ■ Disinfection Unit ■ External Function
■ Other ■ Filtration Unit

- vi. 7 out of the 15 units which reported malfunction during the uptake process are attributed to Filters. No particular port is identified as a Port with Challenging Water (PCWQ)
- vii. A couple of vessels installed with electro-chlorination plants commented on the issue of achieving TRO due to freshwater in the port.
- viii. Contrary to the submission made at MEPC, the vessel operating in the Indian ports have reported of lesser challenges in the operation of the BWMS.

Conclusion:

MEPC discussions and the Convention Review Process presently underway is emphasizing on the development of robust BWMS which can be operated in all types of waters. Based on the data analysed in the present study, no specific Indian port was identified as presenting water conditions that rendered BWMS inoperable.

It is proposed that a further scientific study be undertaken to check the effectiveness of the BWMS operations in Indian waters and ensure that the D2 compliance is achieved.





MARPOL AT 50

Our Commitment Goes On

