Green Marine Europe Environmental Program

2025

Performance Indicators for Ship owners

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AIR EMISSIONS - GREENHOUSE GASES

OBJECTIVE: Reduce greenhouse gas (GHG) emissions.

LEVEL 1

Monitoring of regulations

LEVEL 2

2.1 Implement a systematic control policy for documenting fuel (e.g., Bunker Delivery Notes (BDN), best practices application, or any other proof of the control policy in place). BDN should refer to ISO 8217:2017 tables at least.
Note: BDN must be retained, and annual consumption notes must be kept for each ship.

2.2 Plan voyages and stopovers using decision tools based for example on climatology and weather forecasting to reduce/optimize energy used for each voyage.

2.3 Optimize trim for energy efficiency when loading ships and barges.

2.4 Implement a preventive engine maintenance system to optimize performance.

2.5 Identify optimal engine speed or engine load for energy efficiency. Inform crew and ensure awareness of this optimal 'economic' speed and/or engine load. Transit at this speed to the extent practicable.

2.6 Implement a program for energy efficiency upgrades (e.g., lighting, heating/cooling).

2.7 Conduct an internal survey for equipment or energy loads that could be more efficient with smart controls, variable loads, or other means, i.e. HVAC in unoccupied spaces, air compressor, or cooling pump; and/or from survey findings, make progress right-sizing or upgrading equipment, balancing loads, or similar.

Pilot Boats and Tugs Only:
2.8 Reduce idling with dispatch scheduling and/or provide tie-up locations where awaiting tow or escort.

LEVEL 3

3.1 Complete and disclose an annual GHG emissions inventory (totals and intensity) for the company's entire fleet, owned and chartered, including voyages outside Europe.
Notes:
-See Annex 3-B for more information on the calculation of GHG emissions
-See Annex 3-E for Ship owner selecting full well-to-wake (WtW) emission calculations including monitoring plans, emissions reports and documents of compliance pursuant to IMO/EU regulations. Only WtW emission calculations, from either 2027 or 2028 (depending on when IMO mid-term measures will be implemented), are to be used.

3.2 Adopt a Decarbonization Plan that has quantifiable objectives towards net-zero and that formally incorporates the best practices required for achieving Level 2.
Note: See Annex 3-C.

3.3 Based on the inventory made in criterion 3.1, set a strategic objective aiming at a 40% reduction of GHG per transport work (or other appropriate normalizers) by 2030 since 2018 and net zero emission of the fleet by 2050.
Note: See Annex 3-B for methodology and Annex 3-E for full WtW emission calculations.

AND fulfill one of the following 2 criteria:

3.4 Support scientific research on energy efficiency and decarbonization by providing access to ships by government, academic, or other research groups or by participating in an expert working group.

OR

3.5 Publicly disclose GHG reduction target as defined in the Decarbonization Plan.

LEVEL 4

Fulfill one of the following 2 criteria:

4.1 Based on the inventory made in criterion 3.1, achieve an annual average reduction in GHG intensity (GHG emissions per ton or passenger or cubic meter or deadweight-nautical mile or per hour- for tugs or other non-cargo ships) of 2.3% since 2018.
Notes:
See Annex 3-B for more information on the calculation of GHG emissions
See Annex 3-E for Ship owner selecting full well-to-wake (WtW) emission calculations including monitoring plans, emissions reports and compliance documents pursuant to IMO/EU regulations. Only WtW emission calculations, from either 2027 or 2028 (depending on when IMO mid-term measures will be implemented), are to be used.

OR, if criterion 4.1 is not applicable, for the specific cases of ship owners that did not have data in 2018 and/or already invested in a low-carbon fleet that has a consistent impact on the GHG performance of the fleet. 4.2 Achieve an average annual GHG intensity per transport work of their vessel(s) equal to or below the EEOI value as calculated according to the three different options to assess vessel GHG performance as described in Annex 3-D (level 4).
Notes:
-See Annex 3-A for "low-carbon" definition.
-Other ship owners should comply with criterion 4.1.

4.3 Define an action plan towards a 40% GHG reduction per transport work by 2030. And, if possible, prepare for a net-zero emission of the fleet by 2050.

4.4 Actively participate in research and development on reducing GHG, for example, alternative and renewable fuels, alternative propulsion, infrastructure development, or abatement technologies.
Note: Active participation in R&D is defined as the provision of support by the participant, whether through financial means, human resources, equipment, and/or experimental shipboard trials; in partnership with an academic institution, technology developer, innovation accelerator, or government agency.

LEVEL 5

Fulfill one of the following 2 criteria:

5.1 Based on the inventory made in criterion 3.1, achieve an annual average reduction in GHG intensity (GHG emissions per ton or passenger or cubic meter or a deadweight-nautical mile or per hour for tugs or other non-cargo ships) of 3.3% since 2018.
Notes:
-See Annex 3-B for more information on the calculation of GHG emissions
-See Annex 3-E for Ship owner selecting full well-to-wake (WtW) emission calculations including monitoring plans, emissions reports and compliance documents pursuant to IMO/EU regulations. Only WtW emission calculations, from either 2027 or 2028 (depending on when IMO mid-term measures will be implemented), are to be used.

OR, if criterion 5.1 is not applicable, for the specific cases of ship owners that did not have data in 2018 and/or already invested in a low-carbon fleet that has a consistent impact on the GHG performance of the fleet
Note: See Annex 3-A for "low-carbon" definition.

5.2 Achieve an average annual GHG intensity per transport work of their vessel(s) equal to or below the EEOI value as calculated according to the three different options to assess vessel GHG performance, as described in Annex 3-D (level 5).
Notes:
-See Annex 3-D.
-Other ship owners should comply with criterion 5.1.

AND fulfill one of the following 3 criteria:

	OR	**OR**
5.3 Actively participate in and provide funding for a study and/or project with shipping decarbonization objectives reachable before 2030, such as: - zero-emission or low-emission vessel(s) with the objective to build a demonstration vessel by 2028 - low-emission alternative fuel/energy or biofuel (liquid or gas) production - Any other project with shipping decarbonization objectives (such as those referenced by the Getting to Zero Coalition, Zero Emissions Waterborne Transport, Global Center for Maritime Decarbonation (GCMD), or Mission Innovation).	5.4 Acquire and/or build a low-carbon emission vessel that includes at least a 40% emission reduction on laden voyages (propulsion and auxiliary needs). At least one vessel in the fleet should be equipped with low-carbon propulsion means such as wind or use alternative fuels/energy. Note: see Annex 3-A for definitions.	5.5 For at least 75% of the vessels in the fleet, Adopt an action plan demonstrating that either the average speed or engine settings will meet the parameters prescribed in Annex 3-F for maximum AVR speed. Demonstrate that engine efficiency optimization settings were defined and implemented (e.g., optimum for speed, load setting, number of running engines, etc.). Note: See Annex 3-F.

AIR EMISSIONS - NOx

OBJECTIVE: Reduce pollutant air emissions of nitrogen oxides (NOx).

LEVEL 1

Monitoring of regulations

LEVEL 2

2.1 Implement a systematic control policy for documenting fuel (e.g. Bunker Delivery Notes (BDN), best practices application, or any other proof of the control policy in place). BDN should refer to ISO 8217:2017 tables at least.
Note: BDN must be retained, and annual consumption notes must be kept for each ship.

2.2 Plan voyages and stopovers using decision tools based for example on climatology and weather forecasting to reduce/optimize energy used for each voyage.

2.3 Optimize trim for energy efficiency when loading ships and barges.

2.4 Implement a preventive engine maintenance system to optimize performance.

2.5 Identify optimal engine speed or engine load for energy efficiency. Inform crew and ensure awareness of this optimal 'economic' speed and/or engine load. Transit at this speed to the extent practicable.

2.6 Implement a program for energy efficiency upgrades (e.g., lighting, heating/cooling).

2.7 Conduct an internal survey for equipment or energy loads that could be more efficient with smart controls, variable loads, or other means, e.g., HVAC in unoccupied spaces, air compressor, or cooling pump; and/or from survey findings, make progress right-sizing or upgrading equipment, balancing loads, or similar.

Pilot Boats and Tugs Only:
2.8 Reduce idling with dispatch scheduling and/or provide tie-up locations where awaiting tow or escort.

LEVEL 3

3.1 Complete an annual inventory of NOx emissions for all the company's ships.
Note: See Annexes 2-C and 2-D.

LEVEL 4

4.1 Conduct sampling of NOx emissions on at least one of the company's ships within the last five (5) years. The sampling test plan must be consistent within the fleet, comparable with prior tests, and a recognized methodology, such as ISO 8178 or IMO NOx Technical Code 2008.

4.2 On board one or more of the company's owned ships, install a higher tier engine than required or use and maintain on-engine or after-treatment NOx emission reduction technologies, like selective catalytic reduction (SCR) or exhaust gas recirculation (EGR), or methods that result in a 15% reduction of NOx emissions below the permitted limits.
Note: Permitted limits are published in the document 'NOx emission permitted limits' in the Members section of the Green Marine Europe website.

LEVEL 5

Fulfill one of the following 2 criteria:

5.1 On board the majority (50%+1 representing at least 30% of the gross tonnage) of the company's owned ships, install a higher tier engine than required or use and maintain on-engine or after-treatment NOX emission reduction technologies or methods that result in a 15 % reduction of NOX emissions per ship below the permitted limits.
Notes:
-Permitted limits are published in the document 'NOx emission permitted limits' in the Members section of the Green Marine Europe website.
-Under the designation of these NECAs, marine diesel engines installed on board ships built on or after 1 January 2021 and operating in the North Sea and Baltic Sea should comply with the Tier III NOx emission limits

OR

5.2 On board one or more of the company's owned ships, achieve a 50% or greater reduction of NOx emissions per ship below the permitted limits by installing a higher tier engine than required or by using and maintaining NOx emission reduction technologies.

AIR EMISSIONS - SOx AND PM

OBJECTIVE: Reduce pollutant air emissions of sulphur oxides (SOx) and particulate matter (PM).

LEVEL 1

Monitoring of regulations

LEVEL 2

2.1 Implement a systematic control policy for documenting fuel (e.g. Bunker Delivery Notes (BDN), best practices application, or any other proof of the control policy in place). BDN should refer to ISO 8217:2017 tables at least.
Note: BDN must be retained, and annual consumption notes must be kept for each ship.

2.2 Plan voyages and stopovers using decision tools based for example on climatology and weather forecasting to reduce/optimize energy used for each voyage.

2.3 Optimize trim for energy efficiency when loading ships and barges.

2.4 Implement a preventive engine maintenance system to optimize performance.

2.5 Identify optimal engine speed or engine load for energy efficiency. Inform crew and ensure awareness of this optimal 'economic' speed and/or engine load. Transit at this speed to the extent practicable.

2.6 Implement a program for energy efficiency upgrades (e.g., lighting, heating/cooling).

2.7 Conduct an internal survey for equipment or energy loads that could be more efficient with smart controls, variable loads, or other means, i.e. HVAC in unoccupied spaces, air compressor, or cooling pump; and/or from survey findings, make progress right-sizing or upgrading equipment, balancing loads, or similar.

Pilot Boats and Tugs Only:
2.8 Reduce idling with dispatch scheduling and/or provide tie-up locations where awaiting tow or escort.

LEVEL 3

3.1 Complete an annual inventory of SOx and PM emissions for all the company's ships.
Note: See Annexes 2-A, 2-B, and 2-D.

3.2 The average sulphur content by mass of the total amount of fuel consumed annually by all of the company's vessels is less than 0.4%.
Notes:
-Fuel sulphur limit is 0.1 % within an ECA and 0.5 % outside ECAs.
-Ship owners can use equipment or alternative fuel allowing for the attainment of the same level of sulphur emissions as above.

Fulfill one of the following 3 criteria:

	OR	**OR**
3.3. Reduce SOx and PM emissions at berth by reducing emissions at each port of call by at least 95% when compared with the use of a fuel oil sulphured at 0.5%. These measures should be implemented on at least 10% of the fleet (representing 7% or more of the tonnage). Note: For wet exhaust gas cleaning system (EGCS), the open-loop system/mode must not be used.	3.4. Reduce SOx and PM emissions at berth by using at each port of call, for powering at least all energy needs based on electricity on board, very low or zero-emission technologies or fuels, alternative fuel(s) or energies/energy vectors having low SOx and PM emissions, or certified EGCS or filtering technologies. These measures should be implemented on at least 10% of the fleet (representing 7% or more of the tonnage). Note: For wet EGCS, the open-loop system/mode must not be used.	3.5 Reduce SOx and PM in port/berth by using at each port of call a fuel with a sulphur content equal to less than 0.1%, including for short calls (less than 2 hours) on 100% of the fleet. Notes: -Ship owners can use equipment or alternative fuel allowing for the attainment of the same level of sulphur emissions as above -For wet EGCS open-loop system/mode must not be used.

LEVEL 4

4.1 The average sulphur content by mass of the total amount of fuel consumed annually by all of the company's vessels is less than 0.3%.
Notes:
-Fuel sulphur limit is 0.1 % within an ECA and 0.5 % outside ECAs.
-Ship owners can use equipment or alternative fuel allowing for the attainment of the same level of sulphur emissions as above.

AND, fulfill one of the following 2 criteria:

4.2 Reduce SOx and PM emissions at berth by reducing emissions at each port of call by at least 95% when compared with the use of a fuel oil sulphured at 0.5%.
These measures should be implemented on at least 25% of the fleet (representing 15% or more of the tonnage).
Note: For wet EGCS, the open-loop system/mode must not be used.

OR

4.3 Reduce SOx and PM emissions at berth by using at each port of call, for powering at least all energy needs based on electricity on board, very low or zero-emission technologies or fuels, alternative fuel(s) or energies/energy vectors having low SOX and PM emissions, or certified EGCS or filtering technologies.
These measures should be implemented on at least 25% of the fleet (representing 15% or more of the tonnage).
Note: For wet EGCS, the open-loop system/mode must not be used.

AND, fulfill one of the following 2 criteria:

4.4 Sample PM emissions for one of the fleet's main engine types (slow-speed, medium-speed, high-speed, gas or steam turbine).
Note: Sampling must be repeated every five (5) years. The sampling test plan must be consistent within the fleet, comparable with prior tests, and a recognized methodology, such as ISO 8178 or 40 CFR 51 Appendix M and 40 CFR 60 Appendix A.

OR

4.5 Actively participate in research and development on reducing the impact of SOx and PM emissions, for example – improving inventory tools, developing hybrid or blended fuels, or conducting a pilot project on emission reduction technologies.
Note: Active participation in R&D is defined as the provision of support by the participant, whether through financial means, human resources, equipment, and/or experimental shipboard trials; in partnership with an academic institution, technology developer, innovation accelerator, or government agency.

LEVEL 5

5.1 The average sulphur content by mass of the total amount of fuel consumed annually by all of the company's vessels is less than 0.2%.
Notes:
-Fuel sulphur limit is 0.1 % within an ECA and 0.5 % outside ECAs.
-Ship owners can use equipment or alternative fuel allowing for the attainment of the same level of sulphur emissions as above.

5.2 In a polar zone, vessels will not use or carry any heavy fuel or VLSFO/ULSFO.

AND, fulfill one of the following 2 criteria:

5.3 Reduce SOx and PM emissions in berth by reducing emissions at each port of call by at least 95% when compared with the use of a fuel oil sulphured at 0.5%.
These measures should be implemented on at least 50% of the fleet (representing 30% or more of the tonnage).
Note: For wet EGCS, the open-loop system/mode must not be used.

OR

5.4 Reduce SOx and PM emissions at berth by using at each port of call, for powering at least all energy needs based on electricity on board, very low or zero-emission technologies or fuels, alternative fuel(s) or energies/energy vectors having low SOx and PM emissions, or certified EGCS or filtering technologies.
These measures should be implemented on at least 50% of the fleet (representing 30% or more of the tonnage).
Note: For wet EGCS, the open-loop system/mode must not be used.

AND, fulfill one of the following 2 criteria:

5.5 Achieve a 75% or greater reduction of PM emissions (compared to no treatment) per ship by:
(i) applying pre-treatment and/or on-engine measures;
(ii) applying after-treatment measures, such as a diesel particulate filter (DPF), diesel oxidation catalysts (DOCs), or other EGCS;
(iii) using wind propulsion, or by;
(iv) using other energy-solutions that result in low SOx & PM emissions.

Year 2023-2024
-For a fleet of 20 or fewer vessels, these measures must be on board one or more of the company's owned ships.
-For a fleet of more than 20 vessels, these measures must be on board two or more of the company's owned ships.

From year 2025
-For a fleet of 20 or fewer vessels, these measures must be on board two or more of the company's owned ships.
-For a fleet of more than 20 vessels, these measures must be on board at least 5% of the company's owned ships (with them on board at least two ships).

From year 2027
-For a fleet of 20 or fewer vessels, these measures must be on board two or more of the company's owned ships.
-For a fleet of more than 20 vessels, these measures must be on board at least 10% of the company's owned (with them on board at least two ships).

OR

5.6 Each newbuild ship ordered by the company as of year 2024 or as of one year after the company's initial certification, whichever comes first, permanently achieves the requirements for PM emissions (both in PM and PN) of Stage V limits for inland waterway vessels as provided by Regulation EU 2016/1628 on requirements for gaseous and particulate pollutant emission limits and type-approval for internal combustion engines for non-road mobile machinery, by applying an adapted technology such as diesel particulate filters (DPF), diesel oxidation catalysts (DOCs), electrostatic precipitators, etc. (a non-exhaustive list). Such a reduction must be certified in accordance with Regulation EU 2016/1628 and supported by relevant documentation.
Note: Class notations for ships already recognize compliance with the requirements of Stage V PM emission limits of Regulation EU 2016/1628, such as the ULEV notation by Bureau Veritas, or similar notation from any other IACS class society.

AQUATIC INVASIVE SPECIES

OBJECTIVE: Reduce the risk of introducing and propagating aquatic invasive organisms and pathogens associated with ballast water discharges and/or biofouling.

APPLICABILITY: This indicator is only applicable for fleets that regularly manage ballast water and/or use an antifouling system.

Note: "Regularly" excludes exceptional transits like a repositioning cruise, sea trials or some construction condition. It would still allow non-applicability for newer ballast configurations such as flow-through that don't traditionally carry and discharge.

Note: Acronym BWMS is equivalent with BWTS.

REFERENCES: This indicator references the documents listed below, all of which can be found on the Members' Section of Green Marine Europe's website.
- 2023 IMO Biofouling Guidelines Resolution MEPC.378(80) (Criteria 2.4, 2.5, 2.6,3.1, 3.5, 4.3, 4.4, 5.1)
- Biofouling record book template (criterion 2.6)
- Biofouling management plan template (criterion 3.1)
- MEPC Circular 70 (BWM.2/Circ.70/Rev.1) (criteria 5.1 and 5.2)
- MEPC 71/WP.9 Annex 4 (criterion 4.3)

The "International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004" (BWM) applies to ships registered under contracting Parties to the BWM Convention, which take up and use ballast water during international voyages. This agreement will hereafter be referred to as BWM.
According to Article 3, the BWM Convention applies to all ships including submersibles, floating craft, floating platforms, FSUs and FPSOs. It will not apply to: ships not designed to carry ballast water. warships, naval auxiliary ships or other ships owned or operated by a state.

LEVEL 1
Monitoring of regulations
LEVEL 2
2.1 Minimize or, whenever possible, avoid uptake of ballast water in the following conditions: - In shallow water; - In areas close to sewage outflows; - In areas with known epidemics or infestations; - In areas where dredging operations are underway; - In areas where tidal flushing is poor; - In areas identified by regulatory authorities. Note: These measures should include any specific regulations applicable in ports or transit areas. 2.2 Uptake only the minimum amount of ballast water required to safely depart the dock, and complete ballasting operations in deeper waters (while always ensuring the vessel's safety and depending on vessel's type). 2.3 Develop and implement voluntary preventive measures if EU national / EU port authorities determine that a harmful species has established itself in a particular port. 2.4 Periodically inspect vessels' hulls, including niche areas, such as sea chests, propeller thrusters, keels, rudders, and dry dock support strips. Note: Refer to 2023 IMO Biofouling Guidelines Resolution MEPC.378(80) Section [8]. 2.5 If needed, remove biofouling organisms from the hull, propellers, stern tube, sea chests, and other wetted portions of a vessel. Note: Refer to 2023 IMO Biofouling Guidelines Resolution MEPC.378(80) Section [9]. 2.6 For each vessel, keep a record book on details of all inspections and biofouling management measures undertaken on the ship. Note: Refer to 2023 IMO Biofouling Guidelines Resolution MEPC.378(80) Sections [11]. **For vessels not equipped with a BWTS due to exemption:** 2.7 If feasible and safe, conduct water ballast exchange during coastal vessel trade prior to re-entering the next port.

LEVEL 3

3.1 Maintain a Ballast Water Management Plan and/or Biofouling Management Plan for each vessel which includes all applicable best practices required to achieve Level 2. Have a policy to support scientific research (3.2).
Note: Refer also to 2023 IMO Biofouling Guidelines Resolution MEPC.378(80) Sections [10].

3.2 Support scientific research on ballast water or biofouling by providing access to ships for sampling by governmental and research groups or by participating in an expert working group.
Note: It is not necessary to actively participate in the research program in order to fulfill this criterion.

For vessels not equipped with a BWTS due to exemption:
3.3 Complete and maintain an annual inventory to evaluate the amount of ballast water taken and discharged by the company's ships by origin/destination.
Note: See Annex 1-A.

For all vessels with a BWTS:
3.4 Maintain a record of any BWMS malfunction. The record shall include documentation of the nature of the malfunction, its root cause(s), and the corrective and preventive action(s) taken. This documentation must be retained for a minimum of 24 months.
Note: This log has to include any Port State Control (PSC) deficiency concerning BWMS.

For vessels with antifouling or fouling release coating:
3.5 Within dry-docking specifications, select a coating with an effective lifespan in line with the next scheduled dry-docking and anticipate operational wear, such as contact with lock walls or abrasive cleaning.
Note: The effective coating lifespan is determined by the manufacturer based on the vessel-specific application scheme (e.g., coating thickness); it is the age of an anti-fouling coating after which the coating is no longer expected to satisfactorily prevent or deter the attachment and growth of biofouling organisms.

LEVEL 4

Fulfill one of the following 2 criteria:

4.1 Actively participate in research on reducing the risk of Aquatic Invasive Species (AIS) introduction and spread associated with ballast water operations and discharges. For example, partner with an academic institution, a technology developer, an innovation accelerator, a related PhD funding, or a government agency.

OR

4.2 Actively participate in research for eco-friendly biofouling paints and antifouling systems and on reducing the risk of AIS via biofouling, for example, autonomous underwater cleaning or underwater cleaning reclamation (vacuum or other control technologies).
Note: Active participation in R&D is defined as the provision of support by the participant, whether through financial means, human resources, equipment, and/or experimental shipboard trials; in partnership with an academic institution, technology developer, innovation accelerator, or government agency.

AND

4.3. For installed BWMS, adopt contingency measures as per MEPC 71/WP.9 Annex 4.
For the Biofouling Management Plan (BFMP), adopt a contingency action plan to include measures which are ship-specific and relevant for the monitoring parameters.
Note: Participants may use the 2023 IMO Biofouling Guidelines Resolution MEPC.378(80) Section [7].

4.4 For new builts ordered from July 1st, 2025, participant's new builds specifications should comply with the 2023 IMO Biofouling Guidelines Resolution MEPC.378(80) Sections [5 & 6.3].

LEVEL 5

5.1 For each installed BWMS, conduct a ballast water management system commissioning test for biological efficacy.
Use the International Maritime Organization (IMO) Marine Environment Protection Committee (MEPC) Circular 70 (BWM.2/CIRC 70/Rev.1) as the basis for sampling and analysis.

AND fulfill one of the following 2 criteria:

5.2. Participate in a longitudinal biofouling or ballast water study, with onboard data collection over a minimum period of two operating seasons.
Note: Studies must be done in collaboration with a formal research group and can include the sampling of biofouling, testing the application of in-development anti-fouling systems, marine growth prevention systems, grooming technologies, or in-water cleaning technologies.

OR

5.3 Purchase or install a compliance monitoring device and conduct annual self-monitoring of ballast water discharges for each installed BWMS.

OILY DISCHARGE

OBJECTIVE: Minimize risk of oily water discharges.

<table>
<tr><th colspan="2">LEVEL 1</th></tr>
<tr><td colspan="2">Monitoring of regulations</td></tr>
<tr><th colspan="2">LEVEL 2</th></tr>
<tr><td><u>Vessels using an Oily Water Separator (OWS)on board</u>:

Implementation of 7 of the following 10 best practices on all company ships:

2.1 Give staff proper training on bilge water management.

2.2 Ensure performance of each OWS by:
a) Conduct annual calibration of the oil content meter; or
b) Sample treated water monthly and have it analyzed by an accredited lab; or
c) Use a secondary calibrated monitoring unit (e.g., white box).

2.3 Periodically test oil content alarm prior to operating the oily water separator and, in any case, at least once a month if the equipment is not used.

2.4 Use seals or locks on all overboard discharge valves.

2.5 Post signs in the vicinity to clearly indicate who is responsible for opening any OWS overboard discharge valves, operating oily water separation equipment, and for oil transfer procedures.

2.6. Lock out or seal the oil content meter so that the calibration cannot be tampered with.

2.7 Maintain proper coordination with the navigation bridge when opening the overboard discharge valve so a designated officer can also record the activity and the vessel’s position.

2.8 When feasible, only operate the oily water separator during the daytime.

2.9 Regularly clean the applicable bilges and remove any solid material that may reduce the performance of the OWS.

2.10 Reduce as much as possible the use of emulsifying cleaners and agents that can degrade the performance of the OWS.</td><td><u>Vessels NOT using an Oily Water Separator (OWS) on board (even if installed)</u>:

Implementation of 5 of the following 8 best practices on all company’s vessels:

2.11 Regularly inspect and perform preventative maintenance of equipment using oil (engine, burners, pumps, pipes, heaters, filters, etc.) or water (condensers, boilers, pumps, pipes, etc.) to prevent leaks.
<u>Note</u>: Inspections should be done at least in line with manufacturer recommendations.

2.12 Regularly assess the condition and maintain stern tube seals and bearings to prevent water from entering.
<u>Note</u>: Inspections should be done at least annually.

2.13 Stop oil or water leaks in the engine room as soon as possible.

2.14 Clean up oil and water spills as soon as possible after maintenance and repair operations.

2.15 Maintain clean, dry bilges.

2.16 Post signs in the vicinity to clearly indicate who is responsible for bilge water transfer procedures.

2.17 Give staff proper training on bilge water management.

2.18 Keep available on-board oil absorption pads to intervene in case of minor oil spills.</td></tr>
<tr><td colspan="2"><u>Apply to all Vessels</u>:

2.19 Implement on-board segregation of waste in accordance with the Resolution MEPC.295(71) and ensure delivery to adequate port reception facilities that comply with Article 4(2)(d) of Directive (EU) 2019/883.
<u>Note</u>: Ports outside EU may not apply Port Reception Facilities Directive.</td></tr>
</table>

LEVEL 3

3.1 Adopt an Oily Water Management Plan that formally incorporates all the best practices itemized in level 2.
Note: See Annex 4-A.

3.2 Complete an annual inventory of quantities of bilge water (produced, treated, discharged to sea and offloaded to shore) and of oil residue (sludge), as applicable, on a vessel-by-vessel basis and for the fleet as a whole.
Note: See Annex 4-B.

3.3 Develop and adhere to environmental procurement guidelines for cleaning products to be used within the engine room, considering third-party certifications*, product content**, and packaging (see the Waste Management performance indicator).
*Such as Centre for Environment, Fisheries and Aquaculture Science (Cefas).
**Chlorine, phosphate-free, minimally toxic, etc.

LEVEL 4

Vessels using an Oily Water Separator (OWS) on board:

4.1 Adopt a modernization program for oily water separators and all related control and verification equipment. Systematic application of this policy on all new buildings and all ships undergoing major modifications.
Note: See Annex 4-C.

4.2 For the majority of new builds:
Implement an integrated bilge treatment system such as that defined in the IMO's revised guidelines (MEPC.1/Circ.642, 12 November 2008).

OR

4.3 Vessels built before 2011: Demonstrate an integrated bilge treatment system approach by respecting the requirements defined in Annex 4-D.
Note: See Annex 4-D.

Vessels NOT using an Oily Water Separator (OWS) on board (even if installed):

4.4 Set reduction or maximum targets (for the fleet as a whole or by vessel category) for bilge water produced.

4.5 Implement effective measures to reduce the quantity of bilge water and sludge produced on 50 % of the company's vessels targeted for reduction.
Examples: Separate drainage systems for water and oil drains, installation of drip trays or coamings under equipment, use less water for maintenance and cleaning, replacement and repair of stern tube seals, etc.).

LEVEL 5

5.1 On all new-build vessels (from January 1st, 2022) fitted with conventional horizontal stern tubes, eliminate the oil-to-water interface by using seawater lubricated bearings or an alternative sealing arrangement. For non-conventional propulsion arrangements, demonstrate best efforts to utilize technologies as they advance to eliminate or reduce the impact of an oil-to-water interface.

Vessels using an Oily Water Separator (OWS) on board:

5.2 Do not discharge treated bilge water in sensitive areas.
Note: Sensitive areas mean:

- Worldwide Particularly Sensitive Sea Areas (PSSA) and Marine Protected Areas (MPA)
- Indigenous Protected and Conserved Areas (IPCA). For USA/Canada, see https://www3.epa.gov/npdes/pubs/vgp_permit2013.pdf and https://www.dfo-mpo.gc.ca/oceans/maps-cartes/conservation-eng.html

For all new builds:

5.3 Implement an integrated bilge treatment system such as that defined in the IMO's revised guidelines (MEPC.1/Circ.642, 12 November 2008).

OR

5.4 Vessels built before 2011:
Demonstrate an integrated bilge treatment system approach by respecting the requirements defined in Annex 4-D.
Note: See Annex 4-D.

Vessels NOT using an Oily Water Separator (OWS) on board (even if installed):

5.5 Implement effective measures to reduce the quantity of bilge water and sludge produced on 75 % of the company's vessels targeted for reduction.
Examples: Separate drainage systems for water and oil drains, installation of drip trays or coamings under equipment, use less water for maintenance and cleaning, replacement and repair of stern tube seals, etc.).

5.6 Demonstrate an annual reduction or negligible (too small to reliably, quantitatively measure) amount of the quantity of bilge water and/or sludge produced (intensity unit is to be determined by the company, e.g. tons/hour of operation).

SHIP RECYCLING

OBJECTIVE: Reduce the effects of ship recycling on human health, safety and the environment.

LEVEL1
Monitoring of regulations
LEVEL 2
2.1 The participant has a written Policy (or Procedure within a management plan that has been approved by senior management} detailing how their written/documented commitment will assure that all ships at the end of their economic lives will be recycled in a sustainable, safe, responsible, and environmentally sound manner. The participant's vessel will not change flag at end-of-life to circumvent the EU Ship Recycling Regulation (SRR). This Policy or Procedure must be applicable to all of the participants' vessels at the end of their economic life that are not sold for onward trading and are thus sent for recycling. Note: At level 2, the policy /procedure does not need to be made public. Note: See Annex 7-A explaining main requirements and how they are interconnected: Basel Convention, EU Waste Shipment Regulation, EU Ship Recycling Regulation. 2.2 Develop Part 1 of an Inventory of Hazardous Materials (IHM) for all new builds (non-EU-flagged) that meet the requirements set out in the EU SRR & Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships and are certified as such by a flag or recognized RO. Note: EU SRR is mandatory for all EU-flagged new build vessels. Note: If the participant has no new builds on order, they must have at minimum an internal written policy /procedure stating their intentions to develop an IHMs for all new builds, should any vessels be ordered in the future. 2.3 Adopt a formal plan to develop Part 1 of an IHM for all existing non-EU-flagged vessels which are not calling EU ports. Note: EU SRR is mandatory for all existing EU-flagged vessels or calling EU ports as of 01/01/2021. 2.4 In accordance with the IHM plan created in level 2.3, develop Part 1 of an IHM for at least one existing non-EU-flagged vessel and which is not calling EU ports. IHM must meet the requirements set out in the EU SRR & Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships. Note: EU SRR is mandatory for all existing EU-flagged vessels or calling EU ports as of 01/01/2021. **Ship owners who sold a vessel for recycling during the reporting year only:** 2.5 If towing a vessel to a recycling facility, review tow plan and towing company before making final selection.
LEVEL 3
3.1 Develop a hazardous material removal plan that promotes the substitution of hazardous materials during the maintenance of ships (during layup, repair, dry dock, or as other opportunities present themselves) by less hazardous, or preferably, non-hazardous materials. 3.2 In accordance with the IHM plan created according to level 2.3, develop Part 1 of an IHM for at least 25% of existing vessels not flying EU Flag and which are not calling EU ports. Validate for this 25% of vessels not flying EU Flag all IHM with accompanying compliance statements and renew on a 5-year basis. IHM must meet the requirements set out in the EU SRR & Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships. Note: EU SRR is mandatory for all existing EU-flagged vessels or calling EU ports as of 01/01/2021. 3.3 The public ship recycling Policy demonstrates the participant's commitment to recycling vessels (not already covered by the EU Ship Recycling Regulation or the EU Waste Shipment Regulation) only in ship recycling facilities located in Basel Convention's Annex VII countries. Note: Annex VII includes Parties and other States which are members of OECD, EC, Liechtenstein. **Ship owners who sold a non-EU-flagged vessel for recycling during the reporting year only:** 3.4 When seeking to recycle a vessel, the participant will only tender to (or via broker warranting to use) Ship Recycling Facilities that: a) are currently (and expected to be for the duration of the dismantling} referenced in the EU list of Recycling Facilities. b) Are capable and commit to provide a Certificate of Completion of Recycling. Note: Large commercial seagoing vessels flying the flag of an EU Member State may be recycled only in safe and sound ship recycling facilities included in the European List of ship recycling facilities. 3.5 Require the ship recycling facility, through a contractual clause, to provide regular recycling progress reports, from the time of vessel arrival to the time of receiving a Certificate of Completion of Recycling. Note: See Annex 7-B for minimum progress report content requirements. Note: Large commercial seagoing vessels flying the flag of an EU Member State may be recycled only in safe and sound ship recycling facilities included in the European List of ship recycling facilities.

LEVEL 4

4.1 In accordance with the IHM plan created in level 2.3, develop Part 1 of an IHM for at least 50% of non-EU-flagged vessels and which are not calling EU ports. The IHM must meet the requirements set out in the EU SRR & Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships.
Note: EU SRR is mandatory for all existing EU-flagged vessels or calling EU ports as of 01/01/2021.

4.2 Implement the hazardous material removal plan adopted at level 3.

LEVEL 5

5.1 Require all non-EU-flagged vessels and which are not calling EU ports to have completed Part I of an IHM.
Note: EU SRR is mandatory for all existing EU-flagged vessels or calling EU ports as of 01/01/2021

5.2 Implement a policy upon sale in favour of safe and environmentally sound ship recycling, in line with criteria 3.4.; 3.5 and 4.4, and commit to promote the policy upon sale. No ship that has been sold will have been scrapped within 12 months of the sale (except in case of an accident).
Note: See Annex 7-C for examples of policies on selling owned vessels for further trading.

Ship owners who sold a non-EU-flagged vessel for recycling during the reporting year only:

5.3 Remove all hazardous materials not essential to the vessel's classification, certification, or operation as part of pre-cleaning procedures prior to departure for the recycling facility.

5.4 Hire a third-party auditor to undertake announced and unannounced visits to the recycling facility during the dismantling. The frequency to be agreed upon between the participant and the recycling facility. The "Audit During Recycling" (ADR) will be undertaken on-site involving the participant (or third-party auditor representing the participant) and the recycling facility senior management team. Each ADR report will be shared with the participant and recycling facility.
Note: See Annex 7-D for minimum audit report content requirements.
Note: This is not required if the vessel is recycled in facilities featured in the EU List of approved ship recycling facilities.
Cf. link https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2020.018.01.0006.01.ENG&toc=OJ:L:2020:018:TOC

UNDERWATER NOISE

OBJECTIVE: Reduce underwater noise made by ship operations to reduce impacts to marine mammals.

NOTES:

- Green Marine Europe recognizes that underwater noise may potentially impact a broader range of aquatic species other than just marine mammals. While the initial objective of this indicator covers marine mammals, future development of this Performance Indicator may expand its scope.
- Green Marine Europe recognizes that for most ships, under most operational conditions, cavitation is the main source of underwater noise.
- Applicable only for vessels transiting in salt water.

LEVEL1
Monitoring of regulations
LEVEL 2
2.1 Conduct regular hull cleaning and propeller blade maintenance. The participant must keep a record of these actions for each vessel in their fleet. Note: Hull cleaning and propeller maintenance should at least be done during dry dock. 2.2 Review the list of sensitive areas in Canadian, US and EU waters to determine whether the participant's vessels transit through or have operations in such areas. Ensure that this information is communicated to each vessel. Note: See Annex 6-A. 2.3 Participate in voluntary traffic measures, if such measure provides noise-reduction benefits, such as a slowdown, alternative routing or lateral displacement or any equivalent measure(s), in specific zones as identified by a port or governmental authority. Note: The Particularly Sensitive Sea Area (PSSA) in the North-West Mediterranean will limit the speed at 13 knots.
LEVEL 3
3.1 Actively participate in providing whale sighting data in European waters through a logbook, a recognized application such as a European version of the US app WhaleAlert or the REPCET system (outside mandatory zones for French ship owners), or any other whale sighting research project. Note: If sightings are recorded in a logbook, the data should be shared with a recognized central database, and reported to a coastal authority, with both done when available. 3.2 Develop and adopt a Marine Mammal Management Plan (MMMP) in order to reduce the potential adverse effects of vessels, especially within known sensitive marine areas, as identified in Criterion 2.2. Note: See Annex 6-B. 3.3 Study what is/are the fleet's most relevant vessel(s) in terms of underwater noise emissions, by working with ports, engineering societies, classification societies or scientific research projects to estimate noise emissions. A ranking could be made across the entire fleet. Note: e.g., "relevant" could mean: - Oldest vessel(s) as far as their life duration is sufficient to implement quieting technology - A series of sisterships - Vessel(s) having the longest transit time in areas important for marine mammals - Vessel(s) planning to undertake a drydock or technical stop within 2/3 years - Vessel(s) whose retrofitting of URN device(s) is/are the most feasible It is up to the ship owner to justify why the selected vessel(s) would be the most relevant for this study.

LEVEL 4

4.1 Incorporate applicable vessel quieting technologies during retrofits and new vessel construction, including for the vessel(s) identified in 3.3, by increasing propeller diameter and/or number of blades, optimizing wake and inflow, reducing excitation into the steel structure, etc.
Note: Refer to published documents like the IMO and the SNAME MVEP Guidelines, available in the Members section of the Green Marine Europe website. This criterion is applicable only for ship owners ordering/designing new vessels (keel laid after Jan 2018) or conducting retrofits of propulsion systems or other equipment that contributes significantly to underwater noise.

4.2 Support/collaborate on scientific research on underwater noise leading to the estimation of relative ship noise levels for at least one vessel in the company's fleet.
Note: Collaboration with a (bio)acoustician is essential to obtain reliable data. The estimation(s) of relative ship noise can be determined as per IMO 2014 guidelines or a Classification Society's referential.

4.3 Train the bridge crew members on board with an expertise certification on marine mammals to avoid cetaceans.
Note: This certification can be a recognized Marine Mammal Observer Training or a customized in-house training developed with a relevant expert. If there are no trained crew members on board, then an observer must be on board instead.

Further requirement applying only to commercial or service vessels in transit time sailing faster than 10 knots and not using full wind propulsion:

Fulfill one of the following 3 criteria:

4.4 If it has acoustic benefits, demonstrate that at least one vessel within the company's fleet voluntarily and systematically implements at least a 10% speed reduction compared to BAU, in at least one (as defined in the MMMP) Cetacean Critical Habitat, or any other area identified by port or governmental authorities, and demonstrate no increase of usual speed during the rest of the voyage.
Note: AIS data, bridge logbook, or equivalent type of proof could be used for the demonstration.
Note: BAU is the average commercial speed of the year (n-x) before ship owners apply for Level 4.
For vessels equipped with a Controllable Pitch Propeller (CPP), the ship owner must prove with documentation that the speed reduction or other engine/propeller setting point is the best setting for noise reduction impact.

OR

4.5 Obtain a quiet class notation for at least one vessel within the company's fleet.

OR

4.6 For at least one vessel within the company's fleet, implement at least two noise reduction technologies in two distinct categories as listed below:
1) Propeller noise
2) Wake flow modification
3) Supplementary treatment and air lubrication system (ALS)
4) Machinery treatment
5) Other mitigation technology
Note: Refer to Annex 6-C for the details within each category and related noise reduction technologies.

LEVEL 5

5.1 Support/collaborate on scientific research on underwater noise allowing the estimation of relative ship noise levels for at least 3 vessels or 15% of the fleet.
Note: Collaboration with a (bio)acoustician is typically essential to obtain reliable data. IMO guidelines could be used as well.

Further requirement applying only to commercial or service vessels in transit time sailing faster than 10 knots and not using full wind propulsion:

Fulfill one of the following 3 criteria:

5.2 If it has acoustic benefits, demonstrate that 15% of the fleet's vessels (representing at least 10% of the gross tonnage, with a minimum of 3 vessels) voluntarily and systematically implement at least a 10% speed reduction compared to BAU, in at least one Important Marine Mammal Area, Candidate Important Marine Mammal Area (as defined in the MMMP), Cetacean Critical Habitat, or any other area identified by port or governmental authorities; and, demonstrate no increase of usual speed during the rest of the voyage.
Note: AIS data, bridge logbook, or equivalent type of proof could be used for the demonstration.
Note: BAU is the average commercial speed of the year (n-x) before ship owners apply for Level 5.
For vessels equipped with CPP, the ship owner must prove with documentation that the speed reduction or other engine/propeller setting point is the best setting for noise reduction impact.

OR

5.3 Obtain a quiet class notation for 15% of the fleet's vessels (representing at least 10% of the gross tonnage, with a minimum of 3 vessels).

OR

5.4 For at least 15% of the fleet's vessels (representing at least 10% of the gross tonnage, with a minimum of 3 vessels), implement at least two noise reduction technologies in two distinct categories as listed below:
1) Propeller noise
2) Wake flow modification
3) Supplementary treatment and air lubrication system (ALS)
4) Machinery treatment
5) Other mitigation technology
Note: Refer to Annex 6-C for details within each category and related noise reduction technologies.

WASTE MANAGEMENT

OBJECTIVE: Reduce ship-generated waste.

APPLICABILITY: This performance indicator only applies to the company's owned vessels.

LEVEL 1
Monitoring of regulations
LEVEL 2
2.1 Give crew members proper training on established user procedures and the waste management hierarchy (collect, sort, reduce, reuse, recycle, recovery, disposal, or any suitable alternative having as objective to reduce generated waste and/or waste environmental impact). Note: Training to be at least in accordance with MEPC.295(71) sections 4.7 and 4.8. 2.2 Implement an environmentally sustainable purchasing policy favouring suppliers that use less packaging. 2.3 Encourage best practices to reduce the use of non-reusable supplies for all types of products. Note: This reduction goal is already a legal obligation for single-use plastic products according to Directive 2019/904 on the reduction of the impact of certain plastic products on the environment. Note: Biodegradable supplies could be considered if there is no other possibility. 2.4 No shipboard incineration at port. 2.5 Encourage best practices to reduce wasted food on board. 2.6 Implement on-board segregation of waste in accordance with the Resolution MEPC.295(71) and ensure delivery to adequate port reception facilities that comply with Article 4(2)(d) of Directive (EU) 2019/883. Ensure that all of the company's ships are equipped with recycling bins. Note: Ports outside EU may not apply the Port Reception Facilities Directive. **Applicable only to vessels carrying cargo, not bulk, and performing regularly consecutive voyages:** 2.7 Reuse as much as possible dunnage, lining and packaging material.
LEVEL 3
3.1 Produce an annual inventory of different types of garbage generated in the company's entire fleet and indicate the company's actual garbage management practices. Note: Garbage types refer to the categories defined in MARPOL Annex V, but each company can include additional categories. 3.2 Adopt and implement a management plan towards zero single-use plastic on board (if there is a suitable alternative) Note: See Annex 5-B for a list of the single-use plastic items to avoid. Note: Bioplastics are not considered suitable alternatives, as they are not biodegradable. 3.3 Adopt and implement a management plan that provides in-house training and raises awareness for crew and ground personnel on waste prevention to facilitate waste reduction, collection, sorting, reuse, possible recycling, and avoidance of wasted food. Note: Training to be at least in accordance with MEPC.295(71), sections 4.7 and 4.8. **Passenger vessels only:** 3.4 Implement an awareness campaign for passengers on waste prevention to facilitate waste reduction, reuse, possible recycling, and avoidance of wasted food. Note: This awareness campaign is already a legal obligation for single-use plastic products according to Directive 2019/904 on the reduction of the impact of certain plastic products on the environment. **Container ships only:** 3.5 Adopt and implement a specific weather routing policy to avoid adverse weather conditions and subsequent potential container loss at sea.

LEVEL 4

4.1 Develop and implement a garbage management strategy with defined targets and specific measures to reduce garbage and wasted food, increase recycling, and ultimately target zero discharge at sea.
Note: See Annex 5-A

4.2 & 4.3 are optional for 2024 and 2025:

Fulfill one the following two criteria:

4.2 Based on bills, purchase orders, contracts or any others means, draft an annual inventory that include a yearly plastic ship operational life inventory counting virgin, recycled and biobased plastics, that are used by the company on board of their vessels, in order to progressively reduce plastic waste.
The list should not mandatory be exhaustive but must help ship owners identify where the company does use plastics.
Note: See Annex 5-C for more information on plastic materials and criteria objectives.

OR

4.3 Estimate onboard the tonnage of the main plastic use sources, counting virgin, recycled and biobased plastics, related to the ship operational life e. g. packaging, microplastics in chemicals, furniture, etc. The list should not mandatory be exhaustive but must help ship owners identify where the company does use plastics.
Note: See Annex 5-C for more information on plastic materials and criteria objectives.

Ships using Exhaust Gas Cleaning Systems (EGCS) only:

4.4 Discharge waste generated by EGCS ashore via service providers approved by the local port authority.

Container ships only:

4.5 Facilitate transparent, online public quarterly reporting of containers lost at sea. Reporting should include information on the vessel, its voyage, the location of the loss, and the total number of containers lost.

LEVEL 5

5.1 Demonstrate continual improvement by achieving targets defined in the garbage management strategy.
Note: See Annex 5-C for more information on plastic materials.

New criterion - Optional for 2024 and 2025:
5.2 The garbage management strategy (5.1) must include a progressive deplastification pathway based on the plastic ship operational life inventory established in 4.2 or 4.3.
Note: See Annex 5-C for more information on plastic materials and criteria objectives.

5.3 From January 1st, 2022, EGCS should be used only in closed-loop mode:
•for all new building vessels ordered after January 1st, 2022 (date of contract) with an EGCS
•for vessels retrofitted after this date (date of retrofitting contract) with an EGCS.

Container ships only:

5.4 In the quarterly public report from criterion 4.3, disclose whether containers lost at sea contained dangerous goods (as per the International Maritime Dangerous Goods code) or plastic pellets.

AND

5.5 Actively participate in workshops and/or research focused on the avoidance of container loss at sea, including topics such as: lashing improvement, container loss detection systems, etc.).