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Marflet Marine

30th June 2025

Quality, Health, Safety, Security & Environment Bulletin (QHSSE)

Q2/ 2025

Marflet Marine

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1. INTRODUCTION

Dear Seafarers,

As we navigate through 2025, this second quarter has sharpened our focus on the core principles of our profession: vigilance, discipline, and the continuous drive for improvement. The recent series of SIRE 2.0 inspections across the fleet has provided a candid and valuable snapshot of our performance, highlighting both our operational strengths and, more critically, the areas that demand our immediate and collective attention.

The inspection findings summarized in this bulletin serve as a crucial learning tool for all of us. Each observation, whether related to human performance, process, or hardware, is not a point of blame but an opportunity to learn and reinforce the fundamental good practices that prevent incidents. Let us treat these results as a call to action—a chance to bridge the gaps between procedure and practice and to recommit to the standards of excellence we set for ourselves.

A powerful testament to our proactive safety culture is the "Best Practices" program. We are incredibly encouraged by the quality and ingenuity of the solutions being shared from our vessels. Your initiatives, from enhancing fire safety measures to improving VDR procedures, are the most effective drivers of change. They prove that practical knowledge and on-the-ground expertise are our greatest assets in building a safer, more efficient fleet. We urge you to continue this valuable exchange of ideas.

In this edition, we delve into critical lessons learned from recent industry incidents, including the dangers of rerouting in severe weather, the profound importance of proactive fatigue management, and the invisible threat of GPS spoofing to navigational security.

Thank you for your hard work and dedication. Our journey toward operational excellence is a shared one, built on honest accountability, shared knowledge, and the commitment of every single person on board.

Safe seas and fair winds!

Patryk Solarski
Vetting, Marine & Safety Manger | DPA

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2. BEST PRACTICES

Sharing Best Practices is a key pillar of our safety and operational excellence at sea. By exchanging effective solutions and strategies, we raise standards across the entire fleet, ensuring safer and more efficient operations.

We are pleased to report that, following our previous call for submissions, we received **7**.

Every vessel faces unique challenges, and by learning from each other's experiences, we enhance procedures, reduce incidents, and create a safer working environment for all.

Your Contribution Matters

We encourage all crew members to continue this momentum. Contributing Best Practices is not just about improving safety, it's also an opportunity to demonstrate leadership, showcase expertise, and make a meaningful impact. By sharing innovative and practical solutions, you help shape a stronger, safer, and more efficient fleet.

Recognition & Rewards

To further motivate participation, we offer financial incentives for high-quality Best Practices. Depending on the relevance, detail, and effectiveness of your submission, bonuses ranging from $50 to $300 will be awarded. This reward system acknowledges the effort behind each shared practice and highlights the positive impact it can have on our entire organization.

Looking Ahead

As we enter the next quarter, let's build on this success. Whether it's a new safety measure, an operational improvement, or a cost-saving technique, your contribution could make a real difference.

📩 Send your Best Practices to: dpa@marfletmarine.com

Let's keep this momentum going! Your ideas are making an impact—let's continue improving, innovating, and strengthening our safety culture together.

We also encourage **Captains and Chief Engineers** to take the lead in **implementing these Best Practices on board** and sharing their feedback. If you have successfully applied Best Practice on your vessel, let us know! **Send us photos and your insights** into how it has improved safety, efficiency, or daily operations. Your experience can inspire others and help refine these practices even further.

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LIST OF BEST PRACTICES

ALL BEST PRACTICES ARE AVAILABLE IN PAL (QDMS)

No.	BEST PRACTICE TITLE	VESSEL	AUTHOR
1	SAFETY PPE BOX OF FRESH WATER GENERATOR AND BOILERS CHEMICAL DOSING TANK	SANTIAGO I	DAVID LAGÜERA ZABALA
2	DESIGNATED USB FOR VDR	SANTIAGO I	MARIO CARRIL
3	ADDITIONAL MEANS FOR FIRE SAFETY	SANTIAGO I	PAULA NAVARRO HERRERA

1. FABRICATE SAFETY PPE BOX OF FRESH WATER GENERATOR AND BOILERS CHEMICAL DOSING TANK.

Since this ship was delivered from shipyard and how many years pass by, I noticed this point of Chemical Dosing tank of Fresh generator and Boilers doesn't have Standby Proper PPE on the sides and during adding some chemicals it is easy to find and to use the PPE and it must have always visible when it comes of Inspection and to avoid deficiency from the inspector, as per MSDS those chemical for dosing tanks has Hazardous contain it can easily injured if someone does not use proper PPE. In this case we plan to fabricate a box besides of Fresh water Generator and Boilers chemical dosing tanks to Store the proper PPE and always standby in case someone will use it and for the future inspection.

BEFORE

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AFTER




This BEST PRACTICE is when you fill up the chemical dosing tanks, it is easy to see & use the Chemical PPE and it's safe for everyone.


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2. DESIGNATED USB FOR VDR

In case of emergency or incident where we need to extract data from VDR system, we should have an adequate USB Memory stick available on board with enough capacity of memory to be able to extract all recorded data, designated only for this matter. This USB Stick must be always under Master supervision and not to be used without Master order/permission.

To avoid any delay/problem for this simple issue during urgent scenario, USB stick has been placed in the vicinity of VDR system, into Gyro and Navigation equipment room. Extraction instructions have been clearly posted as well.

Designated USB must have enough capacity to record all data, and crew should know this limitation. *In the case of 'MT Santiago I' for 48 hours of recorded data, the system is extracting 28-33 GB. If the designated USB is not adequate to cover all this memory, an alert will rise in the VDR Alarm Panel, and we will not be able to extract it. So, it is necessary at least 64 GB USB memory Stick.*

Only specific crew should know the location and procedure to avoid any cybersecurity problem, under Master supervision.

Posted instructions will help new joiners, Master/Officers or crew who are not familiar with this procedure.

This simple action may help everyone.

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3. ADDITIONAL MEANS FOR FIRE SAFETY

The incinerator room is classified as a machinery space of category A containing oil-fired boiler (SOLAS II-2/3.31), so as per SOLAS Regulation 10, Chapter II-2, paragraph 5.1.2.3:

In each firing space there shall be a receptacle containing at least 0.1m³ sand, sawdust impregnated with soda, or other approved dry material, along with a suitable shovel for spreading the material. An approved portable extinguisher may be substituted as an alternative.

Currently, our incinerator room is already equipped with two portable fire extinguisher that meets the necessary approval standards. However, in the interest of enhancing onboard safety and ensuring full compliance with the aforementioned SOLAS regulation, I have taken the additional step of placing a dedicated receptacle filled with 0.1 m³ of sand within the firing space. This supplementary measure is intended to further reinforce our fire safety preparedness and provide an additional means of manual fire suppression, thereby contributing to a safer working environment for all personnel.

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A. SIRE 2.0

NO.	TYPE	NAME	VESSEL
8.9.4	Hardware	Midship ballast vacuum breaker used to drain ballast line in freezing weather was corroded and in need of maintenance.	Panagia Thalassini
9.4.1	Human	Human - Junior Deck Officer: Not as expected. One head line was fixed to a bit forward not as recommended, it was take one full turn around the leading post before the belaying fugure of eight instead of two	Santiago I
4.2.3	Process	Process – Not as expected – procedure and / or document deficient. Engineering Audit. Brief details of the assessor's qualifications and experience were not included within the report.	Santiago I
5.2.2	Process	Process – Not as expected – procedure and / or document deficient. Navigational Audit. Brief details of the assessor's qualifications and experience were not included within the report.	Santiago I
6A.43	Process	Process – Not as expected – procedure and / or document deficient. Mooring and Anchoring Audit. Brief details of the assessor's qualifications and experience were not included within the report.	Santiago I
9A.1.1	Process	Process – Not as expected – procedure and / or document deficient. Ship Design. The Nitrogen plant block and bleed arrangement was located inside the heater room instead of in the cargo area on deck as required by FSS Code Chapter 15 item 2.2.3.1.9	Santiago I
1.0.0	Hardware	As per the Class Survey Status Report dated 30 May 2025, four significant Class memoranda were noted	Santiago I
3.2.8	Process	No evidence showed that the onboard staff identified as approved assessors were in possession of the company defined training for approved assessors.	Santiago I
5.1.16	Human	No evidence showed that the OP had arranged for the following flooding drill scenarios in the past 12 months: - Machinery space flooding. -Forecastle space flooding.	Santiago I
5.9.2	Process	There was no risk assessment available which identified the minimum spare parts that must be carried for a single hose handling crane.	Santiago I
5.10.2	Hardware	The maximum load on bottom end plate was not marked at the both ends of the accommodation ladders (port & starboard).	Santiago I
5.10.2	Human	The OP was not fully aware of the required markings on the accommodation ladders.	Santiago I
10.5.1	Process	The operator's procedure for bunker tank gas checks was not available at the time of inspection	Santiago I
10.5.1	Human	No evidence showed that the OP had arranged for bunker tank ullage space atmosphere checks for flammable and toxic vapours before, during and after the bunkering operation carried out on 29 May 2025.	Santiago I

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B. CDI

No inspection during the last quarter.

C. PSC

NO.	TYPE	NAME	VESSEL	NO.
14104	PSC	N/A	There are two sampling points on O.W.S. first one not arranged on vertical section	Santiago I
07110	PSC	N/A	Quantity of fire extinguish service for incinerator – insufficient	Santiago I
07199	PSC	N/A	Means to check the quantity of medium in CO2 bottle not provided	Santiago I

D. SUMMARY

AVERAGE INDUSTRY OBSERVATIONS SIRE 2.0: 6.86 OBSERVATIONS PER INSPECTION

AVERAGE MARFLET MARINE OBSERVATIONS SIRE 2.0: 7.83 OBSERVATIONS PER INSPECTION

This analysis covers the fleet's inspection performance from January 1, 2025, to June 20, 2025. It builds upon the initial findings from Q1 and incorporates new data to provide a comprehensive overview. The data continues to highlight significant challenges in adapting to the heightened scrutiny of the SIRE 2.0 regime, reinforcing the previous summary's conclusion that a substantial improvement in onboard operational discipline is required.

The data for 2025 (as of June 20th) encompasses a total of 9 inspections, comprising 3 Port State Control inspections and 6 SIRE 2.0 inspections.

Performance Hotspots:

- The Virgen del Cisne (14 observations) and Virgen del Quinche (13 observations) are significant outliers. These two SIRE 2.0 inspections alone account for 56% of all SIRE 2.0 observations YTD.
- Best Practices: The excellent result of the Virgen de la Aurora in its PSC inspection (zero observations) and the strong performance of the Panagia Thalassini in its SIRE 2.0 inspection (one observation) should be studied and their practices shared across the fleet.
- The Santiago I and Virgen de la Aurora show mixed results, performing well in one inspection but accumulating multiple observations in another. This points to a potential lack of consistent operational discipline.

A sample of 31 recent observations provides an updated breakdown of deficiency types. This data aligns with and reinforces the findings from the Q1 summary.

Breakdown of Observation Sample (YTD 2025):

- **Process-related:** 14 (45%)
- **Human-related:** 12 (39%)
- **Hardware-related:** 5 (16%)

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The dominance of Process and Human factors continues to be the core issue. This confirms that failures are not primarily due to equipment breaking down, but rather due to established procedures not being followed and a lack of diligence in human performance. These findings are consistent with the Q1 analysis and demonstrate a persistent, systemic challenge. The high number of process-related issues suggests that onboard procedures may be unclear, impractical, or inadequately supervised. The previous action plan remains valid.

The first half of 2025 has confirmed that the SIRE 2.0 era presents a substantial, ongoing challenge. The high number of observations is unacceptable and exposes the fleet to significant operational, financial, and reputational risk.

However, the data also provides a clear path forward. The issue is not fleet-wide mediocrity, but rather specific areas of weakness on particular vessels and a systemic need to reinforce procedural discipline and human performance. By focusing intense remedial action on the identified underperformers and learning from the successes of our champions, we can drive significant and measurable improvement. The time for reflection is over; the time for targeted action is now.

1. HEALTH

Proactive Fatigue Management for a Safer Crew

Life at sea is demanding, and the unique challenges of the maritime environment make fatigue one of the most significant and insidious risks to seafarer health and vessel safety. While our last bulletin touched upon general wellbeing, this quarter we take a deeper dive into fatigue—a condition that goes beyond simple tiredness and can severely impair judgment, slow reaction times, and lead to catastrophic errors.

Fatigue is a state of physical and mental exhaustion caused by factors common in our industry: long work hours, irregular watch schedules, high-pressure operations, and the constant motion and noise of the vessel. The consequences are well-documented, contributing to everything from minor personal

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injuries to major maritime accidents. Recognizing and managing fatigue is not just about compliance with rest hour regulations; it is a fundamental pillar of our safety culture.

Practical Strategies for Combating Fatigue:

- **Prioritize and Protect Rest Hours:** The accurate recording of work and rest hours using systems like Watchkeeper is a critical tool, not a bureaucratic task. Masters and Heads of Department must plan work schedules to ensure compliance is possible, protecting seafarers' opportunities for restorative sleep.
- **Improve Sleep Quality:** Good rest is more than just time off-duty. Crew can improve sleep quality by:
    - Making cabins as dark, quiet, and cool as possible.
    - Avoiding caffeine, heavy meals, and excessive screen time before sleeping.
    - Engaging in regular physical exercise, which is proven to improve sleep patterns.
- **Recognize the Warning Signs:** All crew should be aware of the signs of fatigue in themselves and their shipmates. These include difficulty concentrating, irritability, poor communication, and repeated mistakes. Fostering an environment where a crew member can report feeling unfit for duty due to fatigue is a sign of a strong safety culture.

Managing fatigue is a shared responsibility. It requires disciplined personal habits from the crew and proactive, thoughtful planning from vessel leadership. A well-rested crew is an alert, efficient, and—most importantly—safe crew.

Food Safety Focus: The Power of FIFO and self-audits.

A ship's galley is the heart of its community, directly impacting crew morale and health. Building on the "Food and Catering Best Practices" established in many of the maritime companies, this article focuses on two simple but powerful practices that are essential for preventing foodborne illness and reducing waste: regular galley self-audits and strict adherence to the "First In, First Out" (FIFO) principle.

Galley Self-Audits: Your First Line of Defense

A galley self-audit is a proactive, scheduled inspection of all food preparation and storage areas, conducted by the vessel's own catering team. This isn't about finding fault; it's about finding and fixing potential issues before they become serious hazards. Regular audits help:

- **Identify Hidden Risks:** Catch problems like failing refrigerator temperature controls, early signs of pests, or poor hygiene practices that may have been overlooked during daily routines.
- **Reinforce Standards:** Ensure the checklists established for daily, weekly and monthly cleaning are being followed effectively.
- **Maintain Inspection Readiness:** A well-audited galley is always prepared for a Port State Control, Agriculture control or third-party inspection, preventing the kind of minor deficiencies that can lead to major headaches.

FIFO ("First In, First Out"): A Simple Rule for Safety and Savings

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The FIFO principle is a stock rotation system guidelines. Its consistent application is critical. When receiving provisions, new stock must always be placed *behind* existing stock. This ensures older products are used first.

The benefits are twofold:

1. **Safety:** It prevents the use of expired products, which are a primary cause of food poisoning and other foodborne illnesses.
2. **Efficiency:** It minimizes food spoilage and waste, which is essential for managing victualing budgets effectively.

Implementing these practices is not an extra burden; it is a mark of professionalism. Consistent galley audits and a disciplined approach to FIFO are fundamental to upholding our commitment to the health, safety, and wellbeing of every person on board.

2. SAFETY

Rerouting risks – severe weather

In recent months, numerous vessels have rerouted around South Africa to avoid security threats in the Red Sea, particularly Houthi attacks. However, this alternative route introduces its own significant risks. Extended voyages increase exposure to severe weather and its associated hazards.

During the southern hemisphere winter of 2024, the Cape of Good Hope experienced severe weather events, leading to several maritime incidents. This region is well-known for unpredictable and challenging conditions—stormy seas, large swells, and rogue waves—all of which pose serious dangers

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to vessels and their crews. Tragically, there have been fatalities involving crew members who were swept overboard by waves while working on deck.

Cargo stowage on container ships, bulk carriers, vehicle carriers, and general cargo vessels is particularly susceptible to the increased rolling and pitching caused by rough seas. Failures in cargo securing can result not only in cargo loss or damage but also in structural damage, onboard fires, loss of vessel stability, or even capsizing. Overboard cargo can further endanger other vessels and cause environmental harm, with clean-up operations sometimes costing millions of dollars—especially when plastics, such as nurdles, are involved.

Lessons Learned

- **Continuous Training:** Regularly update and refresh navigator skills in storm avoidance, weather assessment, and routing strategies.
- **Cargo Securing:** Frequently check lashings, as they may loosen during the voyage. Ensure such inspections are conducted only in safe conditions. If a stowage failure occurs, it may be too dangerous to attempt re-securing until the weather improves.
- **Machinery Risks:** Heavy seas can cause significant movement of lubricating oil, potentially triggering low-level alarms and resulting in automatic engine shutdowns.
- **Limited Port Options:** In the event of a major casualty off South Africa, options for refuge are limited, as few regional ports can accommodate the largest vessels.

Burning plastic on deck causes fatality

A deck crew member was assigned to dispose of accumulated shipboard plastic waste by burning it in an empty 200-litre oil drum on the poop deck, using only wastepaper as an accelerant. Over the course of the morning, he burned several bags of plastic waste and resumed the task after lunch.

At approximately 1420, an explosion occurred, triggering the fire alarm and alerting the crew. The crew member was found engulfed in flames. His colleagues extinguished the fire and transferred him to the ship's hospital. Despite receiving medical assistance and evacuation efforts, the crew member later died from his injuries.

The investigation identified critical failures in communication and procedure. The Master intended for the plastic waste to be landed ashore, but this was not communicated to all officers. The Chief Engineer denied a request to use the incinerator without explanation, prompting the Chief Mate to improvise by instructing the burning of waste on deck—a practice not permitted by the Company's SMS. Crew members followed these instructions despite knowing they violated company procedures.

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Reconstruction: note yellow rectangle showing access hole and open can of paint thinner

Lessons Learned

- **Never burn any material on open decks.** Waste should be disposed of in the vessel's incinerator or stored for shore disposal if the incinerator is unavailable.
- **Strict adherence to SMS and ISM procedures is essential.** Gaps between written procedures and actual practices can lead to serious incidents.
- **Effective communication and leadership are critical.** Vessel leaders must set the standard and ensure all crew members are informed and empowered to challenge unsafe practices.
- **Safety culture requires vigilance.** Crew should question any instruction that appears unsafe or non-compliant.

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Fire hose cabinet in poor state

During a routine inspection of exterior fire hoses and their protective cabinets, an officer discovered that the securing bracket of one cabinet was severely corroded. Additionally, the fire hose inside was not properly secured and fell onto the deck when the cabinet door was opened.

As a corrective measure, a new rail was fabricated and a proper securing hanger for the hose was installed.

Lessons Learned

- **Thorough Inspections:** The extent of deterioration suggests deficiencies in previous monthly inspections. This highlights the need to approach routine checks with a fresh perspective and heightened attention to detail.
- **Readiness of Fire Equipment:** Fire safety equipment must be maintained in optimal condition at all times. In the event of a fire, there will be no opportunity to perform repairs.

Challenging berth location and questionable tug services adds to docking difficulty

A cargo vessel, under pilotage and with tug assistance, was berthing in a confined waterway characterized by strong currents and shallow waters. The complexity of the operation was heightened by local regulations prohibiting tugs from securing lines to the vessel, restricting their role to push-assist manoeuvres only.

During the approach to the berth, the vessel was making 4.8 knots before corrective actions were initiated. Despite several engine manoeuvres and the eventual deployment of the port anchor, the vessel made contact with the pier at a speed of 0.9 knots. Damage was sustained to both the starboard bow and the aft starboard quarter.

A company investigation determined that the incident resulted from a combination of environmental, operational, and systemic factors. The strong currents and shallow waters significantly hampered the vessel's manoeuvrability and exacerbated the challenges posed by the angular design of the pier. These environmental factors were further complicated by local regulations, which limited tugs to push-assist operations and prevented them from providing pull support.

Critical communication gaps were identified between the vessel's bridge team, the pilot, and the tug operators. Furthermore, the delayed deployment of the port anchor reduced its effectiveness in countering the vessel's swing to starboard during the final phase of the approach.

Lessons Learned

- **Comprehensive pre-berthing planning and preparation are essential** to mitigate operational risks in challenging environments.
- **Open and continuous communication** between the Master, pilot, and tug operators is crucial for effectively managing the dynamic conditions encountered during berthing operations.
- **Regular drills and training focused on emergency response procedures,** including timely anchor deployment and adaptive manoeuvring, are vital to ensure that crews are adequately prepared for similar scenarios in the future.

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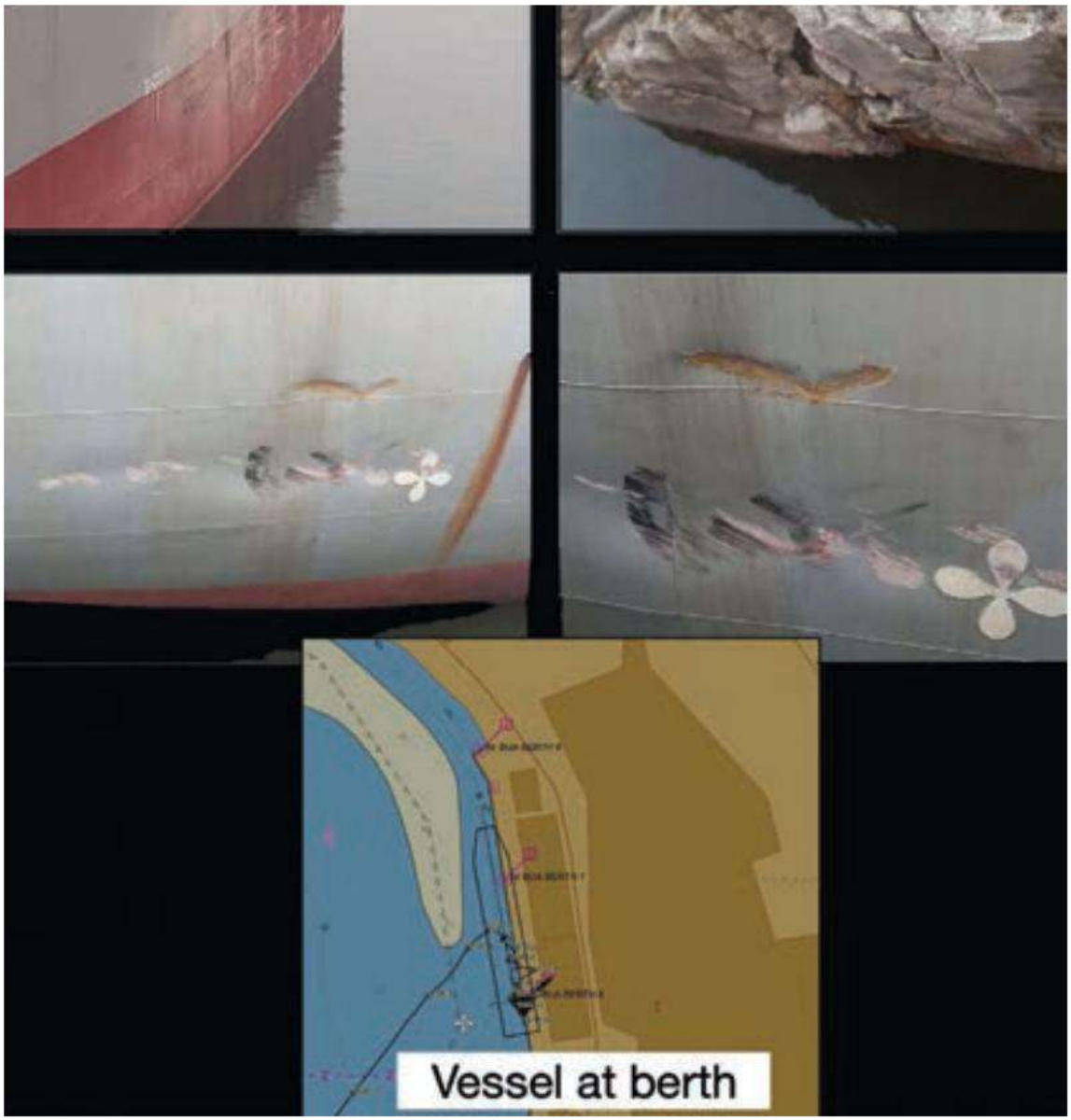

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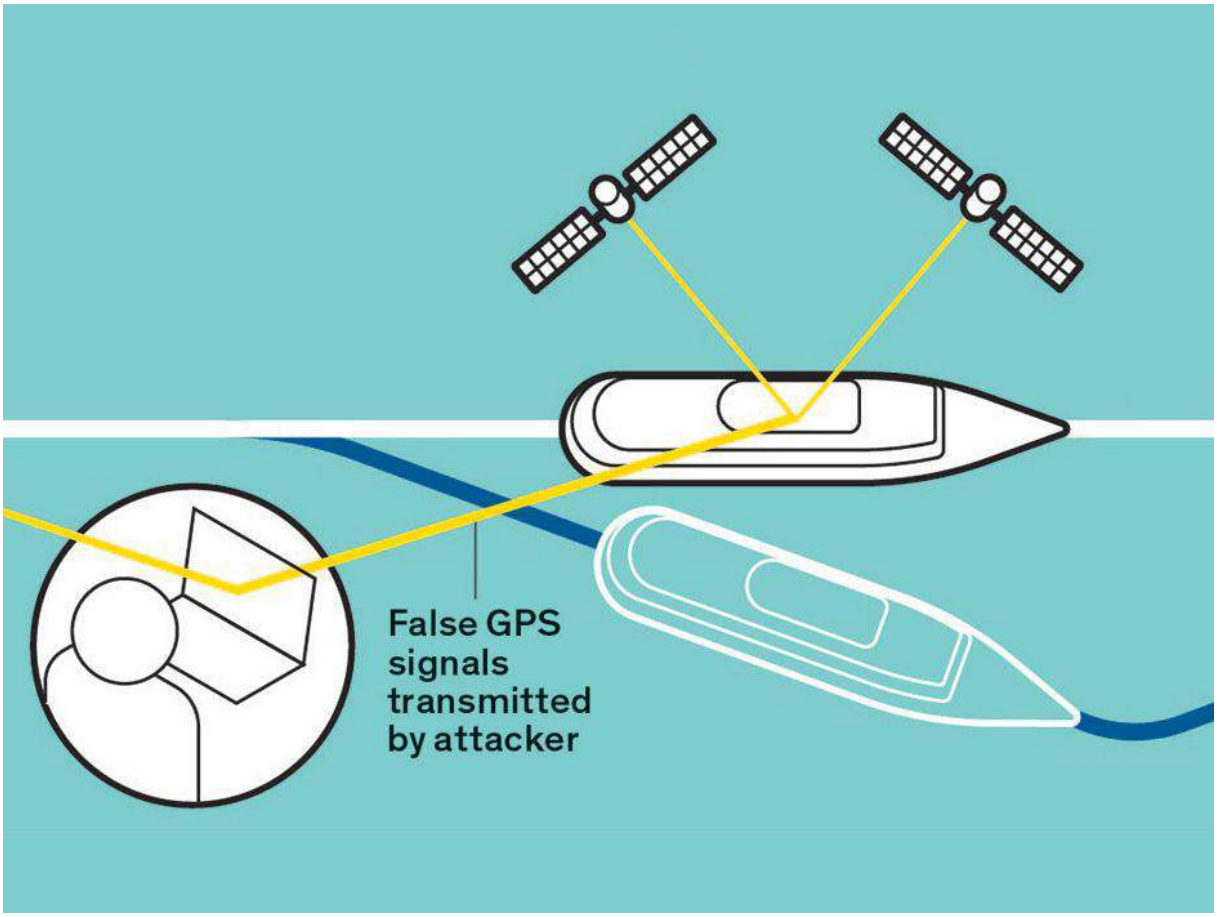
3. SECURITY

Understanding and Mitigating the Risk of GPS Spoofing



In modern navigation, our reliance on the Global Positioning System is absolute. However, this reliance introduces a vulnerability that can be exploited with malicious intent: GPS spoofing. Unlike GPS jamming, which blocks the signal and creates an obvious alarm, spoofing is a more deceptive threat. It involves broadcasting a false, but seemingly authentic, GPS signal to trick a vessel's receiver into calculating an incorrect position, often without triggering any immediate alerts.

This "invisible" manipulation poses a severe risk to the safety of the vessel, its crew, and cargo. A spoofing attack can cause a ship's Electronic Chart Display and Information System to show a false position, leading the navigator to steer the vessel off course and toward dangers like shoals, offshore platforms, or into disputed territories.

Detecting a Potential Spoofing Attack:

The bridge team's vigilance is the primary defense. Never rely on a single source of navigational information. If spoofing is suspected, the following signs may be present:

- **Sudden or Illogical Position Jumps:** The vessel's position shifts instantly to a new location without a corresponding course or speed change.
- **Drifting Position:** The vessel's position begins to drift when it should be stationary (e.g., at anchor).

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- **ECDIS and Radar Mismatch:** The vessel's position on the ECDIS does not align with radar overlays or tracked targets.
- **Inconsistent Data:** The reported course and speed over ground disagree with sensor readouts from the gyro and speed log.

Response in Case of a Suspected Attack:

If the bridge team suspects a spoofing event, they must act immediately:

1. **Switch to Manual Steering:** Disengage the autopilot immediately to regain control of the vessel's heading.
2. **Verify Position Manually:** Use all available means to cross-check the vessel's position. This includes taking radar bearings, visual fixes from landmarks, and, where possible, celestial navigation.
3. **Inform the Master:** The Master must be notified immediately of the suspected event.
4. **Report the Incident:** The event should be reported to the Company Security Officer and relevant coastal authorities as per the Ship Security Plan.

While technology is an invaluable tool, fundamental seamanship remains our greatest asset. A vigilant watch, a healthy skepticism of all electronic inputs, and the disciplined practice of traditional navigation techniques are the best safeguards against this growing digital threat.

4. ENVIRONMENTAL

New Emissions Control Areas for Mediterranean Sea, Canadian Arctic and Norwegian Sea

The IMO has adopted amendments to MARPOL Annex VI which introduce three new Emissions Control Areas (ECAs) for nitrogen oxides (NOx) and sulphur oxides (SOx).

The following new areas will require ships to comply with reduced emissions limitations:

- Mediterranean Sea (SOx)
- Canadian Arctic (NOx and SOx)
- Norwegian Sea (NOx and SOx)

These ECAs are defined in the regulations and are illustrated in the charts below:

Mediterranean Sea - In the chart below, the numbered points relate to the corresponding coordinates given in the regulations.

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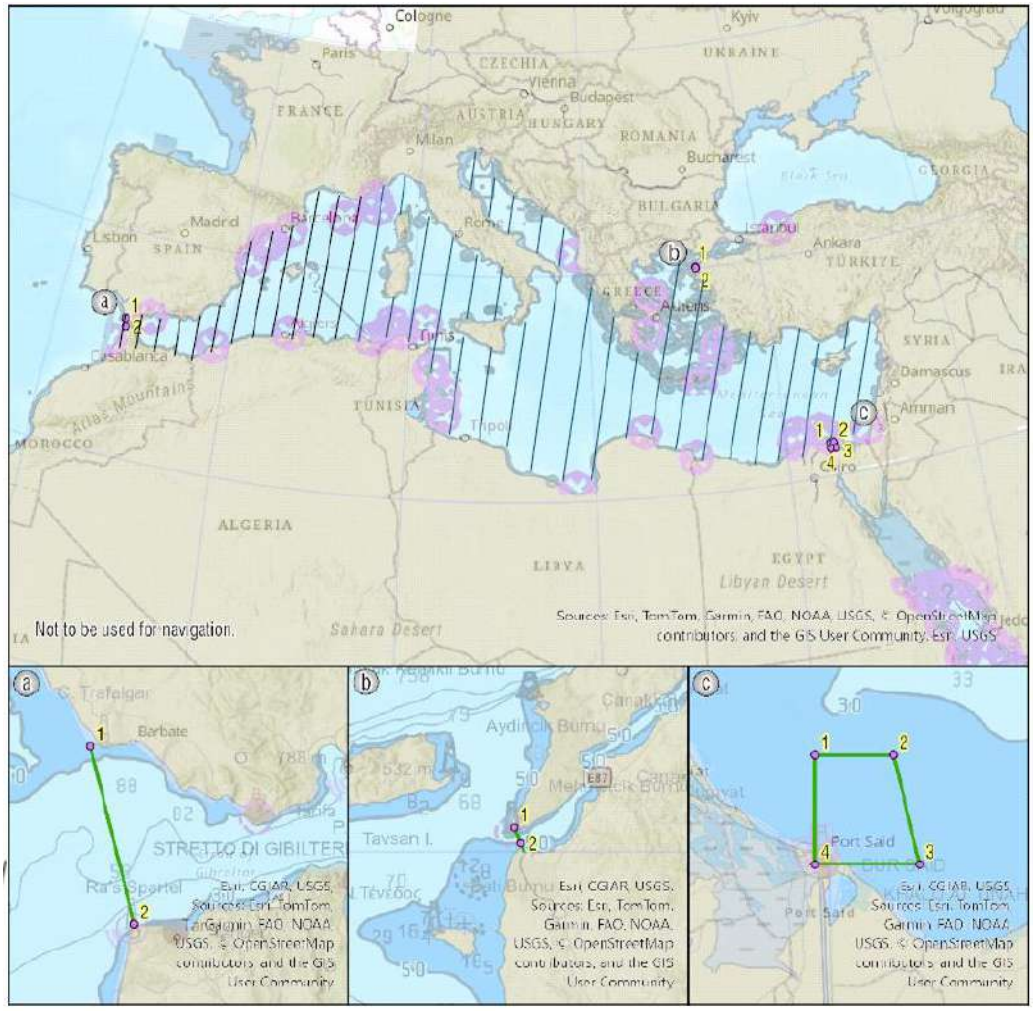
These ECAs are defined in the regulations and are illustrated below:



Canadian Arctic - In the above chart, the numbered points relate to the corresponding coordinates given in the regulations.

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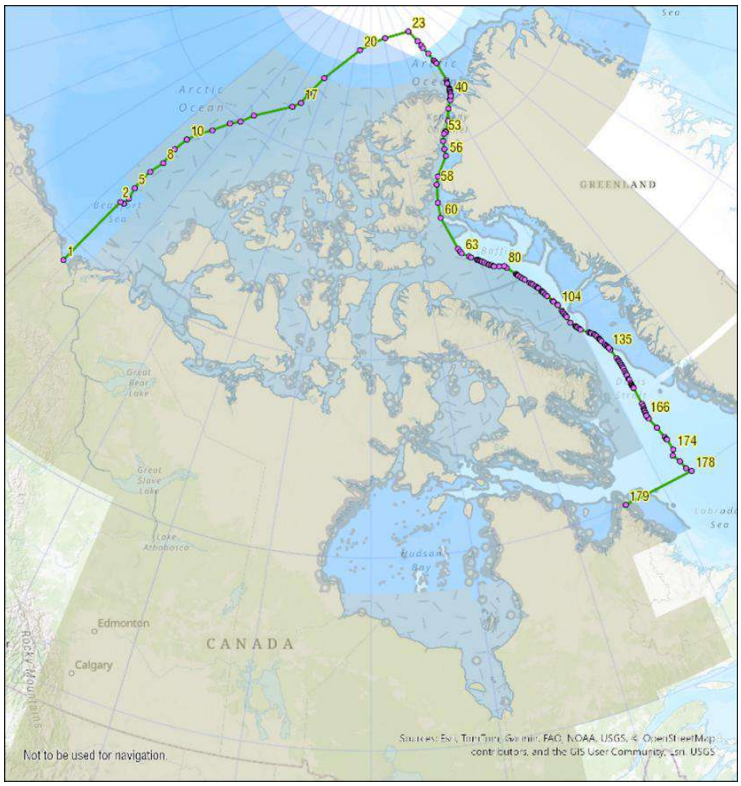
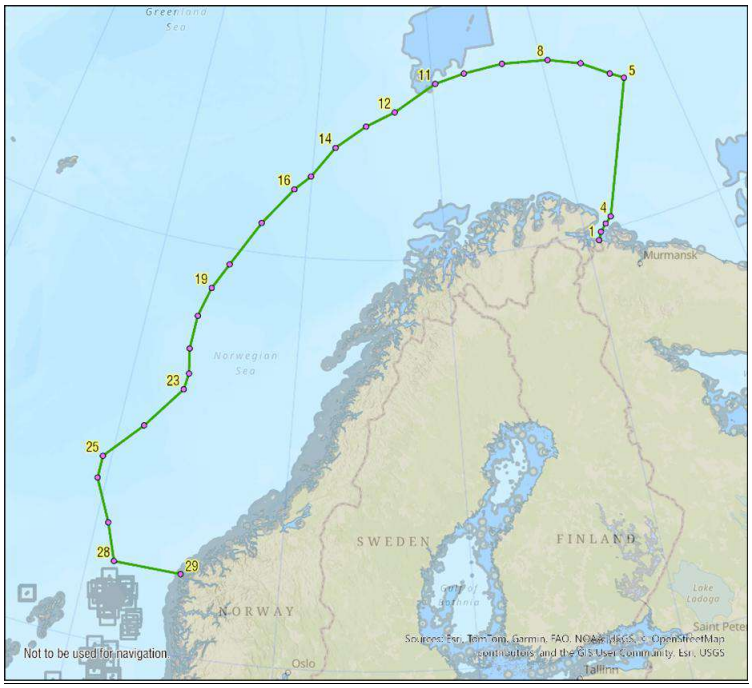


Norwegian sea - In the above chart, the numbered points relate to the corresponding coordinates given in the regulations.



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Mediterranean Sea becomes a SOx ECA from 1 May 2025

From this date, amendments to MARPOL Annex VI Regulation 14.3.5, as amended by IMO Resolution **MEPC.361(79)**, will prohibit ships operating within the Mediterranean Sea ECA from using fuel oils with a sulphur content exceeding **0.1%** m/m unless an approved equivalent arrangement is used such as Exhaust Gas Cleaning Systems.

The Mediterranean Sea Emission Control Area for Sulphur Oxides and Particulate Matter includes all waters bounded by the coasts of Europe, Africa and Asia, and is described by the following coordinates:

1 - the western entrance to the Straits of Gibraltar, defined as a line joining the extremities of Cape Trafalgar, Spain (36°11'.00 N, 6°02'.00 W) and Cape Spartel, Morocco (35°48'.00 N, 5°55'.00 W);
2 - The Strait of Canakkale, defined as a line joining Mehmetcik Burnu (40°03'N, 26°11'E) and Kumkale Burnu (40□01'.00 N, 26□12'.00 E); and
3 - The northern entrance to the Suez Canal excluding the area enclosed by geodesic lines connecting points 1-4 with the following coordinates:

Point	Latitude	Longitude
1	31°29'.00 N	32°16'.00 E
2	31°29'.00 N	32°28'.48 E
3	31°14'.00 N	32°32'.62 E
4	31°14'.00 N	32°16'.00 E

Canadian Arctic and Norwegian Sea become NOx ECAs from 1 March 2026

From this date, in accordance with MARPOL Annex VI Regulations 13, as amended by IMO Resolution **MEPC.392(82)**, ships operating in either the Canadian Arctic ECA or Norwegian Sea ECA with a marine diesel engine with power output of more than 130kW are required to be certified to the NOx Technical Code 2008 to meet the NOx Tier III standard, as follows:

- For the Canadian Arctic ECA, ships with keels laid or at a similar stage of construction on or after 1 January 2025.
- For the Norwegian Sea ECA:
  - Ships with a building contract placed on or after 1 March 2026
  - In absence of a building contract, ships with keels laid or at a similar stage of construction on or after 1 September 2026; or
  - The delivery is on or after 1 March 2030

Canadian Arctic and Norwegian Sea become SOx ECAs from 1 March 2027

From this date, amendments to MARPOL Annex VI Regulations 14.3.6 and 14.3.7, as amended by IMO Resolution MEPC.392(82), will prohibit ships operating within either the Canadian Arctic ECA or Norwegian Sea ECA from using fuel oils with a sulphur content exceeding 0.10% m/m unless an approved equivalent arrangement is used such as Exhaust Gas Cleaning Systems.

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Ships operating in or entering the new SOx ECAs on or after their effective dates, will need to have on board sufficient compliant fuel oil (0.10% m/m maximum sulphur content) and bring it into use as required, or have installed and operate an approved alternative compliance mechanism, such as an Exhaust Gas Cleaning System.

Ships entering the new SOx ECAs before these dates, which intend to stay in them after the relevant ECA enters effect, will need to ensure that compliant fuel oil is brought into use no later than 00:00 hrs on the effective date.