

B GUIDANCE

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UNDERSTANDING HULL FOULING

HULL FOULING REFERS TO A CONDITION WHEN MARINE ORGANISMS SUCH AS BARNACLES, ALGAE, AND MUSSELS ATTACH THEMSELVES TO A SHIP'S UNDERWATER HULL SURFACE AREA.

When operating in tropical or seasonal tropical waters the higher temperatures and sunlight provide ideal conditions for the rapid growth of marine organisms, particularly when the ship is stationary at anchorage for a longer period. Furthermore, during seasonal tropical periods, ocean currents transport nutrients from deeper waters to the surface in coastal areas, promoting the growth of photosynthetic organisms.

COSTLY CONSEQUENCES

HULL FOULING HAS BOTH DIRECT AND INDIRECT IMPACTS ON A SHIP'S PERFORMANCE.

The most immediate effect is the increase in hull friction reducing the ship's hydrodynamic efficiency, which leads to increased resistance as the ship moves through water, requiring more power and fuel to maintain speed. Higher fuel consumption reduces fuel efficiency and significantly increases operating costs for shipowners. Additionally, hull fouling can negatively impact speed performance, potentially leading to performance claims due to failure to meet charter party speed and consumption warranties.

This increased fuel use also has an environmental impact, leading to increased greenhouse gas emissions. This directly conflicts with international regulations aimed at reducing emissions in the maritime industry and increases risk of non-compliance with environmental regulations, such as those set by the International Maritime Organization (IMO).

In warmer waters, hull fouling can exacerbate corrosion and localised damage on the hull, propeller or sea chests, particularly in a tropical marine climate where salinity is high. In some cases, ships may need in-water hull cleaning between scheduled drydocks, particularly if stationary in warm waters for extended periods.

DEFINING THE TROPICAL ZONES

THE IMO BROADLY CONSIDERS 'TROPICAL WATERS' TO BE THE AREA BETWEEN THE TROPIC OF CANCER (APPROXIMATELY 23.5°N) AND THE TROPIC OF CAPRICORN (APPROXIMATELY 23.5°S)¹.

This definition is primarily used in general discussions of climate zones and their effects on maritime operations, whereas the International Convention on Load Lines 1966 provide a more refined definition that extends beyond strict geographical boundaries, additional regions based on specific criteria related to weather patterns and sea temperatures. 'Seasonal tropical zones' are areas adjacent to the tropical zone that experience tropical conditions during certain months of the year.

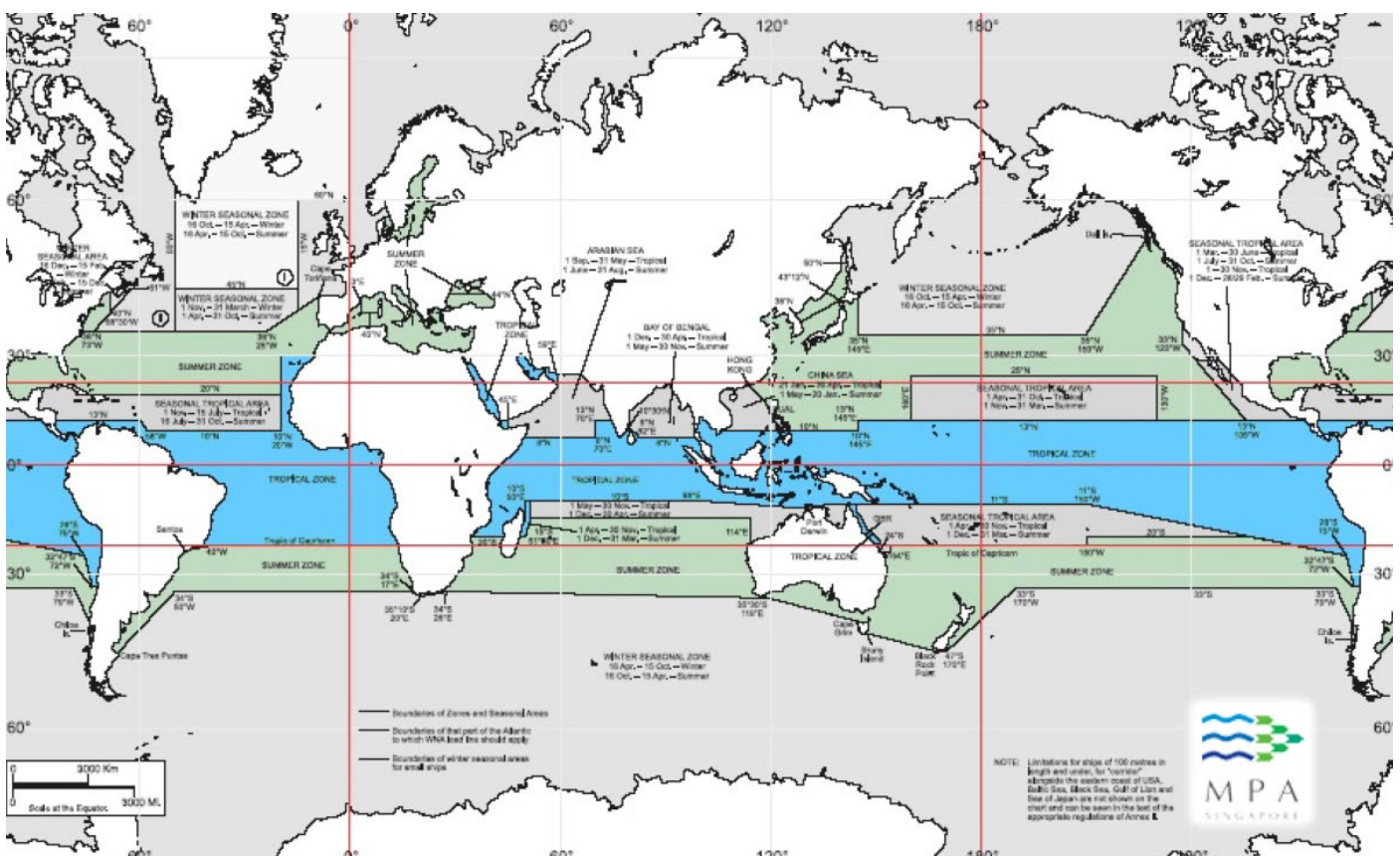


FIGURE 1 MPA – chart of zones and seasonal areas²

1 IMO Rules: Regulation 48 - Tropical Zone - <https://www.imorules.com/GUID-7388A8D1-D2C7-47FF-9C1B-CEAE0A17025A.html>
 2 Singapore Statues Online - Annex II: Zones, Areas and Seasonal Period - <https://sso.agc.gov.sg/SL/MSA1995-RG5?DocDate=20151228&ProvIds=Sxll->

OPERATIONAL CONSIDERATIONS

IN WARM TROPICAL REGIONS, REGULAR UNDERWATER HULL INSPECTIONS ARE CRITICAL.

Shipowners may employ divers or remotely operated vehicles (ROVs) to inspect the hull fouling every few months and conduct in-water cleaning at appropriate intervals to reduce the extent of hull fouling. However, shipowners should ensure that all cleaning operations follow the company's risk assessment procedures, whilst complying with local port regulations and permitting requirements.

Modern anti-fouling coatings create a smooth, low-friction surface that reduces the ability of marine organisms to attach to the hull. Shipping companies should develop a bio-fouling management plan³ and adopt a predictive maintenance schedule by tracking the ship's fuel consumption and performance. Any unexpected increases in fuel consumption or drop in speed can be an early indication of fouling issues.

LEGAL CONSIDERATIONS

HULL FOULING MAY OCCUR, DESPITE PROACTIVE PREVENTION EFFORTS, LEADING TO DISPUTES BETWEEN SHIPOWNERS AND CHARTERERS, PARTICULARLY REGARDING WHO BEARS THE COST OF HULL CLEANING.

Charterparty agreements typically include protective clauses to address such situations, but these must be carefully negotiated to avoid misunderstandings on off-hire issues or underperformance claims.

When a charterer issues a voyage instruction to trade within the permitted waters as outlined in the charterparty terms, shipowners are presumed to have knowledge of the geographical areas, seasonal water limits and environmental conditions their ships may encounter. When entering such a fixture, shipowners implicitly accept that hull fouling may occur as an expected operational limitation. Then, shipowners may be unable to recover hull cleaning costs unless the charterparty explicitly includes specific clauses detailing the responsibilities for time losses and delays associated with hull fouling.

BIMCO HULL FOULING CLAUSE

THE BIMCO HULL FOULING CLAUSE FOR TIME CHARTER PARTIES 2019⁴ ESTABLISHES THE RESPONSIBILITIES OF CHARTERERS AND SHIPOWNERS REGARDING HULL FOULING WHEN A SHIP REMAINS STATIONARY OR SHIFTS BETWEEN LOCATIONS WITHOUT UNDERTAKING A SEA PASSAGE SUFFICIENT TO REMOVE MARINE GROWTH FROM THE HULL.

³ IMO - 2023 Guidelines for the Control and Management of Ships' Biofouling to Minimise the Transfer of Invasive Aquatic Species <https://wwwcdn.imo.org/localresources/en/KnowledgeCentre/IndexofIMOResolutions/MEPCDocuments/MEPC.378%2880%29.pdf>

⁴ BIMCO - Hull Fouling Clause for Time Charter Parties 2019 https://www.bimco.org/contractual-affairs/bimco-clauses/current-clauses/hull_fouling_clause_for_time_charter_parties_2019/

If the ship remains in such conditions for more than the agreed period (15 days by default in tropical or non-tropical zones), any warranties related to speed and fuel consumption are suspended until an inspection of the ship's underwater parts is conducted. Either party may call for this inspection, and it must be jointly arranged at the charterer's risk, cost, and time. If cleaning is required following the inspection, it is the responsibility of the charterers to conduct the cleaning under the Master's supervision and should be in line with the hull coating manufacturer's guidelines. If cleaning cannot be completed or is postponed, the suspension of speed and consumption warranties remains in effect until the cleaning is done.

The clause further stipulates that inspections and cleaning must be carried out before the ship's redelivery. If inspection or cleaning is not possible, both parties must agree on a lump sum payment before redelivery to settle the matter. However, if the charterers can demonstrate that the ship's performance is within the agreed charterparty's speed and consumption parameters despite the time limit set out has been exceeded, the warranties are reinstated, and no further obligations for inspection or cleaning will apply. The clause ensures clarity on responsibilities for inspection and cleaning due to fouling, protecting both parties from disputes related to ship performance during and after the charter period.

However, growing environmental regulations are making it increasingly difficult to find locations that allow in-water hull cleaning. The introduction of biofouling laws in regions such as New Zealand, California, and potentially Australia further adds to the challenges faced by shipowners. Drydocking may become the alternative, but this raises concerns about availability, cost, and the potential for disputes, especially in time charter agreements. Both in-water cleaning and drydocking may involve deviations, waiting times and higher costs, complicating decisions for shipowners.

In voyage charters, local regulations may further delay operations if biofouling prevents berthing at discharge ports after prolonged delays. For instance, BIMCO⁵ advocates for a voluntary approach, based on IMO guidelines, to manage biofouling and avoid invasive species transfer, while shipowners have a natural incentive to control hull fouling for fuel efficiency.

OTHER CONSIDERATIONS

MANY PORT AND COASTAL STATE AUTHORITIES TREAT THE RELEASE OF MARINE GROWTH AND DEBRIS DURING HULL CLEANING AS ENVIRONMENTAL CONTAMINATION.

These authorities may strictly control where and how in-water cleaning can be conducted, often requiring permits and compliance with environmental standards. We recommend seeking guidance on the regulations governing each port and consult local correspondents to ensure compliance with environmental standards.

Another concern is the risk of divers accidentally releasing chemicals, oil, or other harmful substances into the water during hull cleaning operations. Additionally, the potential for unlawful activities, such as illegal items being attached to the hull or tampering with the ship's structure, makes it crucial to implement strict monitoring and security measures throughout the diving process.

5 BIMCO - Hull Fouling - <https://www.bimco.org/regulatory-affairs/policy-positions/biofouling-management/>

SUMMARY

THE BIMCO HULL FOULING CLAUSE HIGHLIGHTS SEVERAL KEY POINTS FOR SHIPOWNERS AND CHARTERERS IN TIME CHARTER AGREEMENTS, PARTICULARLY AROUND HULL FOULING AND MAINTENANCE.

Charterers may include a speed and consumption warranty in the charter party to ensure performance, but disputes can arise if the ship experiences fouling. In such cases, hull cleaning methods, the location of cleaning and responsibilities must be negotiated in advance.

Owners should ensure the protective clauses in the charter party are clearly defined and adequately drafted to avoid misunderstandings. These clauses should specify where and when they apply (e.g., anchorage or port, tropical or non-tropical zones), the length of time after which they take effect, and how delays caused by moving between berths or anchorages are addressed. Misinterpretations or poorly drafted clauses can lead to unintended consequences, disputes, and financial losses, especially regarding hull fouling during prolonged stays in tropical areas.

In addition, contemporaneous evidence is essential when defending against fouling claims, whether the issue stems from poor maintenance, pre-existing conditions, or prolonged idling due to the charterers' business. Proper documentation, such as photos, underwater surveys, and maintenance records taken at the time of the event, can help establish whether the fouling resulted from charterers' activities or was already present. Without such evidence, disputes are more likely to arise, making it harder to determine responsibility for the hull fouling.

Below are some practical preventive tips and considerations when dealing with hull fouling claims:

- Take photos of the hull before a voyage, especially before anticipated delays
- Keep comprehensive records of the ship's hull cleaning and antifouling paint history
- Conduct underwater surveys regularly, especially before and after prolonged port stays, to assess fouling
- Negotiate and clearly define the hull fouling clauses, including timeframes, locations (e.g., tropical vs. non tropical waters), and responsibilities for cleaning
- Agree in advance on whether hull cleaning will be done at berth, by divers, or ROVs
- If fouling is discovered, have an expert estimate how long the fouling has been present, based on available evidence
- Proactively engage with charterers to minimise the ship's static periods to avoid significant fouling
- If delays are unavoidable, shipowners can discuss with charterers to arrange for hull cleaning as soon as possible to prevent extensive fouling.

FOR FURTHER INFORMATION

The Britannia Group has previously published an article on [Underwater Hull Cleaning](#) which could provide some guidelines for shipowners. Members requiring any further guidance are advised to contact the Britannia Loss Prevention Department: lossprevention@tindallriley.com.

DISCLAIMER

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