Sjøfartsdirektoratet
Norwegian Maritime Authority

Our date	Our reference	Our case handler
4 June 2025	2025/46864-1	Linda Dehlin Fluvåg
Your reference	**File No.**	**Direct phone**
	32	+47 52 74 53 03

Consultation – proposed Regulations on the management of hull biofouling

I. General information about the proposal

1. Consultation deadline and contact details

The Norwegian Maritime Authority (NMA) hereby circulates for consultation the proposed new Regulations on the management of hull biofouling.

The deadline for submitting comments is **10 September 2025**. Responses should be sent to: post@sdir.no. The consultation documents are available on the NMA's website: www.sdir.no. If you have any questions regarding the consultation, please contact project manager Linda Dehlin Fluvåg by email at: ldfl@sdir.no. We welcome input from all stakeholders, including designated consultative bodies and other interested parties.

The proposed Regulations are also being notified under the EEA procedure, pursuant to section 4, cf. section 3, of the EEA Hearing Act.

2. Background and process

The NMA initially circulated draft Regulations on the management of hull biofouling for consultation in March 2024. Approximately 40 responses were received, containing a range of comments on the content of the proposed Regulations.

Based on this feedback, it was decided that the proposal required further assessment. Ahead of the summer of 2024, the NMA announced that the proposal should be revised and resubmitted for consultation during 2025.

As part of this work, the NMA has conducted a detailed review of all comments received in the 2024 consultation. In the autumn of 2024, the NMA had a meeting with industry representatives and other relevant stakeholders to discuss the matter. A digital meeting was held in April 2025, during which a revised draft of the Regulations was presented. In addition, the NMA has engaged with the maritime industry in various ways to gain further insight into the technological aspects of hull biofouling.

3. Summary of the proposal

The purpose of these Regulations is to prevent the spread of invasive species from the hulls of ships and mobile offshore units engaged on international voyages arriving in Norway, and to prevent their further spread within Norwegian waters. Additionally, the Regulations aim to ensure that the management of hull biofouling does not lead to further pollution of Norwegian waters. It is important that measures taken to address one environmental issue do not give rise to another.

Postal address: P.O. Box 2222, N-5509 HAUGESUND
Visiting address: Smedasundet 50A, N-5528 HAUGESUND
Tel.: +47 52 74 50 00
Fax: +47 52 74 50 01
E-mail: post@sdir.no
Website: www.sjofartsdir.no
Organisation No.: NO 974 761 262 MVA

The proposed Regulations have a broad scope of application, covering both Norwegian and foreign ships and mobile offshore units located within Norwegian territorial waters, including the waters surrounding Svalbard and Jan Mayen. The specific obligations are set out in the individual provisions of the Regulations.

Each provision specifies which types of ships and mobile offshore units are subject to the respective requirement. Some provisions do not apply to vessels that operate solely within areas inside the Norwegian Economic Zone (NEZ). The scope of each provision is outlined in the text and further clarified under point 3 of part II of this consultation letter.
The main rule is laid down in section 4 of the draft Regulations, which stipulates that ships and mobile offshore units arriving in Norwegian territorial waters from locations outside the NEZ must not have macrofouling on their hulls. The same requirement applies for the duration of their stay within Norwegian territorial waters. This requirement is intended to limit the level of biofouling permitted on ships and mobile offshore units upon their arrival. The ban on hull macrofouling does not apply to microfouling, whether on arrival or while operating within Norwegian territorial waters.

The draft Regulations therefore establish a clear threshold for the extent of biofouling allowed upon entry. If macrofouling is present upon arrival, cleaning is required. The Regulations mandate cleaning only in cases of macrofouling. Where only microfouling is present, the ship or offshore mobile unit is free to decide how this should be managed.

The requirement to limit hull biofouling is closely aligned with the IMO's *2023 Biofouling Guidelines for the control and management of ships' biofouling to minimise the transfer of invasive aquatic species* (MEPC.378(80)), hereinafter referred to as the "IMO Guidelines". The IMO Guidelines include a table (Table 1) distinguishing between several levels of biofouling, whereas the draft Regulations adopt a simpler model, distinguishing only between microfouling and macrofouling.

Furthermore, the NMA proposes that all ships and mobile offshore units entering Norwegian territorial waters from outside the NEZ must have a biofouling management plan in place, along with documentation of any cleaning measures undertaken. In addition, the draft Regulations require the use of best available technology for cleaning biofouling, to minimise the spread of invasive species. The Regulations also empower the supervisory authority to order the removal of biofouling in specific cases.

The IMO Guidelines are publicly available on the IMO website. These Guidelines provide advice on the management of biofouling and may serve as a useful supplement to the Regulations on the management of hull biofouling. It should be noted that, upon entering into force, the Regulations will impose stricter requirements than the IMO Guidelines, see sections 11 and 12.

4. Background to the proposal

In the 2021 allocation letter, the NMA was tasked with investigating and proposing a framework for the implementation of the IMO Guidelines on biofouling. Work on draft Regulations on the management of hull biofouling has therefore been ongoing for some time, in parallel with the international process to revise the IMO Guidelines.

The IMO Guidelines, originally adopted in 2011, were revised and adopted in July 2023. In accordance with the 2024 allocation letter, a public consultation was to be held and national provisions on biofouling established by the end of June 2024. As noted in the introduction, draft Regulations were circulated for consultation in March of that year. The 2025 allocation letter reaffirms that the NMA is to carry out a public consultation and adopt provisions on hull biofouling.

Hull biofouling has several adverse effects, the most notable being economic and environmental. Biofouling increases fuel consumption, and the cleaning of heavily fouled hulls can therefore provide significant cost savings for the companies. Moreover, hull biofouling is a key pathway for the introduction of invasive species,

many of which are already established in Norwegian waters.[1] The spread of invasive species into new ecosystems is recognised as a major threat to the preservation of biological diversity. These factors provide strong justification for introducing measures to reduce the environmental impact of maritime activities.

Mapping which invasive species have been introduced into Norwegian waters is challenging, and controlling the introduction of high-risk species without also regulating the harmless species that accompany them is extremely complex. Furthermore, predicting the extent of the impact non-native species may have on our environment is often difficult and time-consuming.

While there is some knowledge regarding the effectiveness of various hull cleaning methods in preventing the spread of invasive species, there is currently no internationally recognised, standardised method for the cleaning of hull biofouling. This makes it challenging to establish absolute requirements for how cleaning should be conducted to ensure optimal environmental protection. The NMA therefore considers it necessary to require that hull cleaning, when macrofouling is present, be carried out using the best available technology. In accordance with section 10 on cleaning technology, an assessment must be made based on several factors to determine what constitutes the best available technology at the time. This provision is technology-neutral and does not prescribe any specific cleaning method. The NMA considers that this approach will also encourage innovation, potentially contributing to the development of new cleaning solutions.

As previously mentioned, the NMA has engaged with the maritime industry to gain an overview of current cleaning technologies and their availability in Norway. Regarding the primary requirement that ships arriving in Norwegian territorial waters from outside the EEZ must not have macrofouling on their hulls, the NMA is of the view that, with current technology, cleaning of macrofouling with waste collection can commence within 24 hours. It is also worth noting that regular cleaning using technologies that remove microfouling would serve as a proactive and preventative measure against macrofouling.

Despite the challenges associated with regulating biofouling, there is a clear need for legislation to manage biofouling on the hulls of ships and mobile offshore units. At present, there are no regulations specifically aimed at preventing the spread of invasive species from international waters into, and within, Norway. Norway therefore needs clear regulations to help prevent the introduction and spread of invasive species into Norwegian waters via hull biofouling.

5. Legal basis, scope of application and obligated parties

Norway has the sovereign right to regulate its territorial waters.[2]

The legal basis for the Regulations is found in sections 31 to 33 of the Ship Safety and Security Act[3]. This Act applies to both Norwegian and foreign ships, cf. section 2 first paragraph. For Norwegian ships, the Act applies regardless of their location. For foreign ships, the Act applies subject to the limitations imposed by international law within Norwegian territorial waters, the NEZ and the Norwegian Continental Shelf, see section 3 first and second paragraphs.

---

[1] Sandvik, H., Olsen, S. L., Töpper, J. P., & Hilmo, O. (2022). Pathways of introduction of alien species in Norway: Analyses of an exhaustive dataset to prioritise management efforts. Journal of Applied Ecology, 59, 2959– 2970. https://doi.org/10.1111/1365-2664.14287 /
Vivian Husa, Ann-Lisbeth Agnalt (IMR), Henrik Berntsen (NINA), Tone Falkenhaug (IMR), Frode Fossøy NINA, Elisabet Forsgren (NINA), Ellen Sofie Grefsrud, Ann Merete Hjelset (IMR), Frank Hanssen (NINA), Even Husby (Bergen havn), Anders Jelmert, Stein Mortensen, Siri Aaserud Olsen (IMR) and Hanno Sandvik (NINA) Alien marine species in Norway. Marine research report 2022-8 ISSN: 1893-4536
Alien marine species in Norway | Institute of Marine Research

[2] The United Nations Convention on the Law of the Sea, Multilateral No. 1, adopted on 10 December 1982 and entered into force on 16 November 1994. Norway ratified the Convention on 24 June 1996.

[3] Act of 16 February 2007 No. 9 relating to ship safety and security (Ship Safety and Security Act)

According to section 1 of the Ship Safety and Security Act, one of its purposes is to prevent pollution from ships. Section 31 first paragraph prohibits "*[p]ollution of the external environment by the discharge or dumping from ships [...] or pollution in any other way in connection with the operation of the ship [...], unless otherwise decided by law or regulation laid down pursuant to law*". The preparatory works clarify that the "external environment" includes all elements of nature, such as air, sea and land, and that the prohibition covers pollution by discharge, dumping or otherwise.[4] The phrase "or pollution in any other way" is intended to encompass virtually any form of pollution "in connection with the operation of the ship" that causes harm or inconvenience.

Hull biofouling is not, in itself, considered pollution, as it is a natural condition that occurs when ships and mobile offshore units are immersed in water. As such, it cannot be entirely avoided. Small amounts of biofouling, such as microfouling, and their management have not been classified as pollution. However, the NMA considers that waste arising from the cleaning and removal of macrofouling on hulls falls within the definition of "pollution of the external environment" under section 31–33 of the Ship Safety and Security Act. Accordingly, such waste must be regulated. The Regulations primarily target significant amounts of biofouling, referred to as macrofouling. This form of biofouling can be prevented through the establishment of a management plan and regular hull maintenance.

Section 33 second paragraph of the Ship Safety and Security Act authorises the Ministry to issue regulations setting out more detailed requirements for the operation of ships to prevent pollution, including discharges, pursuant to subparagraph b. The NMA has been delegated authority to draft and adopt regulations under section 33 second paragraph according to the Formal Delegation of 29 June 2007 No. 849. This provision thus authorises the NMA to prepare and adopt regulations on the management of hull biofouling.

II. Details of the proposal

1. Introduction

The proposed Regulations on the management of hull biofouling establish requirements for preventive measures by raising awareness of proper biofouling management practices. They require ships and mobile offshore units entering Norway's territorial waters to have a biofouling management plan. This plan must outline measures and procedures to limit biofouling and keep it to a minimum. In addition, the Regulations mandate documentation of ongoing or completed actions taken to control or remove biofouling.

The regulatory framework will be subject to evaluation as new knowledge emerges, including advancements in biofouling management methods and better understanding of the risks and vectors associated with invasive species and their spread.

The Regulations are scheduled for adoption on 1 January 2026, with a proposed effective date of 1 July 2028. This timeline allows affected parties sufficient time to familiarise themselves with the Regulations, improve their practices and implement necessary measures. Developing a ship-specific biofouling management plan and establishing effective routines for regular hull cleaning can take time. The transition period between adoption and entry into force will also enable the authorities to build the necessary capacity and expertise, ensuring they are well prepared to enforce the new requirements. During this period, the NMA will use campaigns and other tools to inform the industry about the upcoming Regulations, facilitating timely compliance. Nonetheless, it is crucial to emphasise the urgency of implementing measures to prevent the spread of alien organisms.

Scope limitations and relation to other regulations

For ships operating solely within the Norwegian Economic Zone (NEZ) and not calling at foreign ports, only two provisions will apply: the requirement to use approved cleaning technology under section 10, and the NMA's power to issue cleaning orders in special cases under section 12.

[4] Ot.prp. No. 87 (2005-2006) p. 120

One reason for limiting the application of the Regulations to ships and mobile offshore units that do not operate outside the NEZ is the duty of care under section 18 of the Regulations relating to alien organisms[5]. In many cases, this duty is considered sufficient to manage the risk of invasive species spreading within Norway's territorial waters. Moreover, international shipping is recognised as posing the greatest risk of introducing invasive species into Norwegian waters.

The NMA therefore considers that, for the time being, the risk of domestic spread of invasive species can be adequately addressed by the cleaning technology requirement (section 10) and the option to issue cleaning orders in particular cases (section 12). This means that ships and mobile offshore units operating exclusively on domestic voyages will be subject to requirements concerning the technology used for hull cleaning, as well as the possibility of receiving an order to clean their hulls in special cases. In other words, there will be a requirement regarding the choice of cleaning technology whenever these ships or mobile offshore units carry out hull cleaning. Ships and mobile offshore units not operating outside the NEZ will not be required to have a biofouling management plan or to provide documentation.

In introducing new Regulations on hull biofouling, the NMA has deemed it most appropriate to begin with those segments of the maritime sector that present the highest environmental risk. At a later stage, it may be appropriate to extend additional provisions of the Regulations to ships and mobile offshore units operating exclusively within the scope of application of these Regulations.

2. Comments to the individual provisions

To section 1 Purpose of the Regulations
This section sets out the purpose of the Regulations, clarifying the objectives of the legislative framework. The primary aim is to regulate hull cleaning to prevent the introduction of invasive species into Norway through international shipping and, consequently, to limit their further spread within Norwegian waters.

A secondary objective is to ensure that biofouling management practices do not result in additional pollution of Norwegian waters, which would be detrimental to the environment. The Regulations therefore underline the importance of ensuring that hull cleaning is carried out appropriately. It is essential that one environmental issue is not replaced by another. This may occur if hull cleaning is inadequately performed or if residues from the cleaning process are not properly managed and are released into the marine environment.

To section 2 Scope of application
It is important to clarify that the Regulations do not apply to recreational craft. At present, the focus is on commercial vessels engaged in international shipping. However, requirements for cleaning recreational craft may be introduced at a later stage. Although recreational craft are currently outside the scope of these Regulations, guidance is available on our website (sdir.no) on recommended practices for hull cleaning, including measures to limit the spread of invasive species such as the carpet sea squirt (Didemnum vexillum).

These Regulations are the first Norwegian legal instrument to address the management of hull biofouling. Accordingly, the scope has been formulated in general terms. The individual provisions specify and limit which ships and mobile offshore units are subject to the various requirements. In a previous draft, the scope was linked to vessel certification. This has now been amended, as the territorial scope of the Regulations does not align with the operational areas specified in certificates.

[5] Regulations of 19 June 2015 No. 716 relating to alien organisms

The Regulations apply to Norwegian ships and mobile offshore units. They also apply to foreign ships and mobile offshore units entering waters under Norwegian jurisdiction, subject to the limitations set out in international law, cf. section 3 of the Ship Safety and Security Act.

The Regulations are issued pursuant to the Ship Safety and Security Act and are therefore subject to the same jurisdictional limitations outlined in that Act.

With regard to mobile offshore units, the NMA recognises that they occupy a distinct position and that the Regulations may not be as well suited to mobile offshore units as they are to ships. At this stage, there is sufficient knowledge to adopt separate provisions for mobile offshore units. However, once the Regulations have entered into force, amendments may be considered if it becomes evident that certain provisions are not functioning as intended.

To section 3 Definitions
This section provides definitions intended to clarify the meaning of various terms used throughout the Regulations. The introductory phrase – "For the purposes of these Regulations, the following definitions apply" – makes it clear that these definitions are specific to these Regulations and may differ from those used in other regulations or contexts.

The central term "biofouling" is defined explicitly. Although most stakeholders likely have a general understanding of the concept of biofouling, an explicit definition is necessary to ensure a common interpretation. As the term appears frequently throughout the Regulations, it is important to establish a clear and shared understanding. The terms "microfouling" and "macrofouling" are also defined,

along with "invasive species" and "hull". The word "hazardous" is deliberately omitted from the definition of "invasive species", as all species alien to the Norwegian marine environment are regarded as potentially hazardous. A narrower definition based on demonstrated harm is therefore unnecessary. The definition of "hull" is specific to these Regulations and may not correspond to its usage in other regulatory frameworks. It explicitly includes "niche areas" to ensure these are taken into account when assessing whether macrofouling is present on a ship or mobile offshore unit.

To section 4 Requirement for limited hull biofouling
This provision sets out the principal rule of the Regulations and establishes several key elements. First, it identifies the duty holders – ships and mobile offshore units. It stipulates that the presence of macrofouling on the hull is not permitted. Accordingly, only microfouling is allowed as the maximum acceptable level of biofouling. The requirement applies upon entry into Norwegian territorial waters from a location outside the NEZ and continues to apply while the ships remain within Norwegian territorial waters.

Norway's territorial waters represent the maritime boundary that the Regulations are intended to protect. As previously noted, international shipping poses the greatest risk of introducing invasive species into Norwegian waters.

Please note that although microfouling is permitted when ships enter or operate within Norwegian territorial waters, the cleaning obligation set out in section 7, cf. section 10, applies if microfouling develops into macrofouling.

The prohibition on macrofouling in section 4 therefore permits the presence of microfouling on ships entering Norwegian territorial waters from a location outside the NEZ. This implies that the hulls are generally expected to undergo hull cleaning before entering Norwegian waters – ideally in connection with departure from a foreign port. The Regulations do not impose any specific requirements regarding how hull cleaning must be performed outside Norwegian territorial waters.

The requirements in section 4 apply to ships and mobile offshore units arriving in Norwegian territorial waters from a location outside the NEZ. The term "location" is to be interpreted broadly and may include ports, anchorages, or other geographical positions. The provision further specifies that the relevant location must lie outside the NEZ.

While it would be desirable to protect as much of the Norwegian coastline as possible, extending the scope of application further could raise issues under international law. For this reason, the Regulations are limited to the territorial sea.

For ships or mobile offshore units sailing between mainland Norway and Svalbard and/or Jan Mayen, the voyage will fall under the wording "from locations outside the Norwegian Economic Zone", and the requirements set out in sections 5, 6 and 7 of the Regulations will apply. This situation is not covered by section 9.

To section 5 Requirement for biofouling management plan

The first paragraph of this provision states that ships and mobile offshore units covered by section 4 must have a biofouling management plan on board. The provision establishes that hull cleaning must be planned and incorporated into a broader system to ensure compliance with the requirements of section 4.

A plan is required that describes "measures and include written procedures and information on the processes applied to ensure that the ship or mobile offshore unit complies with the requirement set out in section 4". By "processes" is meant, among other things, the rationale for selecting a particular cleaning method, and how this choice was made in relation to other possible measures, ultimately leading to the selected cleaning method or technology. As part of the plan, it is expected that the ship's master or the company is familiar with the services available and therefore also what constitutes the "best available technology" in each case, cf. the requirement in section 10. The assessment made when selecting a cleaning service will be reflected in the plan for the specific ship or mobile offshore unit.

The primary purpose of an effective plan is to support the objective of preventing macrofouling on the hull, as described in section 4. The development of such a plan is also essential for the practical implementation of the Regulations. If a plan ensures regular hull maintenance, there will rarely be a need for unscheduled or "emergency" cleaning stops. Such stops may be perceived as an operational burden for ships and mobile offshore units. Therefore, a well-functioning hull cleaning plan can enhance operational predictability for ships and mobile offshore units.

The Regulations also set requirements for the specific content of the plan. It must describe measures and include written procedures and information on the processes applied to ensure that the ship or mobile offshore unit complies with the requirement set out in section 4. It is important that the plan outlines the necessary actions to keep the ship or unit in a condition that prevents the development of macrofouling. These actions may differ depending on the type of vessel. In this way, the plan must ensure that the crew on board is aware of and capable of effectively monitoring and managing hull biofouling.

The plan must be specific and tailored to the individual ship or mobile offshore unit. It is also important that the plan takes operational patterns into account. For instance, a plan for a cargo ship operating between South America and Norway may differ significantly from that of a ferry operating between Norway and Denmark.

Regarding mobile offshore units, the NMA recognises the differences in their operational profiles compared to ships. IMO guidelines are generally better suited to ships than to mobile offshore units. Therefore, it is considered particularly important that the biofouling management plan for mobile offshore units reflects their unique operational profiles and operating areas.

For Norwegian ships or mobile offshore units, there is currently no requirement to submit individual plans to the NMA for evaluation. At present, the content of such plans is subject to the ships' or mobile offshore units' own internal control.

The plan may form part of an electronic system used on board. It may also be integrated into the ISM system.

The final paragraph refers to the IMO guidelines, which may serve as a helpful tool when designing a suitable plan.

To section 6 Requirement for documentation
As only a few countries have adopted regulations on biofouling, the Requirements proposed now are intended to be straightforward and easy to comply with, particularly for ships and mobile offshore units that do not call at Norwegian ports regularly.

In line with IMO guidelines, a biofouling record book should be kept to document cleaning measures carried out. This provision is consistent with those guidelines. However, in the revised Regulations, we have chosen to frame this as a requirement for documentation. The documentation must demonstrate that the hull is free from macrofouling and must include the time and location of biofouling removal, as well as the cleaning method used.

The rationale for this requirement is that confirmation of hull cleaning is often already issued to the company, ship or mobile offshore unit. Such documentation may therefore serve as evidence that appropriate measures have been taken – or are in progress – to manage or remove biofouling.

The final paragraph refers to the IMO guidelines and permits the documentation to take the form of a record book.

To section 7 Requirement for hull cleaning upon arrival in Norwegian territorial waters
This provision establishes that ships and mobile offshore units covered by section 4 and found to have macrofouling on their hull must undergo hull cleaning. There is no requirement to clean in cases of microfouling alone. Accordingly, this provision only applies where macrofouling is present, cf. section 4.

The main objective of the Regulations is that the planning requirement in section 5 ensures regular cleaning, thereby ensuring that ships and mobile offshore units are maintained in a way that prevents the development of macrofouling. The aim is for most ships and mobile offshore units to avoid being subject to the cleaning requirement in section 7 by maintaining an effective biofouling management plan that limits hull biofouling to microfouling only.

However, if macrofouling is observed upon arrival in Norwegian territorial waters, cleaning must be performed as soon as possible to prevent the spread of invasive species. Cleaning must begin no later than 24 hours after arrival. In the spring of 2025, the NMA consulted known providers of hull cleaning services. All confirmed their ability to perform cleaning within a relatively short timeframe. This feedback supports the 24-hour deadline set out in the second paragraph.

The second sentence of the second paragraph states that, in cases where the hull has macrofouling, the ship or mobile offshore unit must be able to provide documentation of planned cleaning. This applies where hull cleaning has already been scheduled as part of the biofouling management plan required under section 5. In such cases, documentation of the planned cleaning must be presented. The documentation requirement also applies in cases where cleaning was not previously planned but becomes necessary upon arrival in order to comply with the macrofouling limits set out in section 4. In the event of an inspection, this documentation serves as proof of compliance with the requirement in section 4.

Special considerations apply to vessels arriving at Svalbard and Jan Mayen. According to the survey circulated in spring 2025, there are currently no providers of hull cleaning services operating in these areas. The waters surrounding Svalbard and Jan Mayen are particularly vulnerable to invasive species, and it is therefore important that vessels arriving in these regions have hulls that are as clean as possible, cf. section 7 first paragraph. Due to the absence of local cleaning services, the 24-hour requirement in paragraph two cannot be fulfilled in these areas.

To section 8 Exception for extended stay in Norwegian territorial waters
Some ships or mobile offshore units arriving in Norwegian territorial waters intend to stay for an extended period. According to section 4, such vessels must not have macrofouling on their hull – neither upon arrival nor during their stay. That implies that cleaning must be carried out if macrofouling occurs, see the commentary on section 4.

However, in certain cases, the proposed Regulations may have disproportionate consequences. This is particularly true where a ship or mobile offshore unit arrives with macrofouling and performs cleaning in accordance with section 7, cf. section 10, within 24 hours. After such cleaning, the hull is clean and, in practice, comparable to that of a ship or mobile offshore unit operating exclusively within the NEZ, which is covered by section 9.

If the ship or mobile offshore unit plans to remain in Norwegian territorial waters for an extended period, an exemption is provided under section 8. The exemption applies in cases where ships and mobile offshore units have cleaned their hulls in accordance with section 7 and intend to stay in Norwegian territorial waters for more than six months. For such extended stays, ships and mobile offshore units with hulls cleaned upon arrival are only required to comply with section 10, in the same way as those that do not operate outside the NEZ. In these cases, section 7, cf. section 4 – which requires cleaning when macrofouling occurs – does not apply. However, if the ship or mobile offshore unit subsequently departs the NEZ, the requirements of section 7 once again apply.

The requirements concerning the biofouling management plan and cleaning documentation will continue to apply.

To section 9 Ships and mobile offshore units not operating outside the Economic Zone of Norway
For ships and mobile offshore units that do not enter Norwegian territorial waters from a location outside the NEZ – and therefore do not operate outside the EEZ – the requirements set out in section 10 apply. This means that such ships and mobile offshore units must use the best available technology when conducting hull cleaning. However, there is no requirement that cleaning be based on the presence of either microfouling or macrofouling.

The underlying assessment is that ships and mobile offshore units operating exclusively within Norwegian territorial waters pose a lower risk of introducing invasive species through hull biofouling. Consequently, the risk associated with macrofouling on these hulls is considered to be lower. Nevertheless, it remains important to regulate how hull cleaning is conducted when it does occur. The Regulations do not specify when cleaning must be carried out, nor do they establish a threshold level of biofouling that would trigger a cleaning requirement.

To section 10 Requirement for cleaning technology
Paragraph one establishes that hull cleaning must be carried out using the best available technology at the time.

Currently, there are no internationally recognised standardised methods for managing biofouling residues from hull cleaning, nor are there globally approved techniques for the cleaning process itself. This poses challenges for regulating hull cleaning in an environmentally responsible manner. The International Maritime Organization (IMO) has issued MEPC.1/Circ.918 (*Guidance on In-Water Cleaning of Ships' Biofouling*). The NMA expects continued advancements in in-water cleaning, inspection technologies and cleaning methods, both with and without capture systems. In light of this, it is considered appropriate that section 10 is framed around the requirement to use the best available technology.

The second paragraph sets out five factors that must be given particular consideration when assessing what constitutes the best available technology at any given time. In this way, the provision serves as a dynamic tool that can adapt as cleaning technologies develop. The factors are as follows:

a. the greatest possible limitation of pollution arising from the cleaning;
b. the maximum reduction in the release of living organisms;
c. the effective removal of hull biofouling;
d. the minimisation of damage and degradation to the anti-fouling system;
e. the highest possible capture rate of material released during hull cleaning.

As mentioned under section 5, a plan is required that describes "measures and include written procedures and information on the processes applied to ensure that the ship or mobile offshore unit complies with the requirement set out in section 4". As part of the plan, it is expected that the ship's master or the company is familiar with the services available and therefore also what constitutes the "best available technology" in each case, cf. the requirement in section 10. The assessment made when selecting a cleaning service must be documented in the plan for the specific ship or mobile offshore unit.

To determine the best available technology at any given time, the master or the company must be aware of the current service providers, their operational areas, and the technologies they offer in compliance with the requirements of the Regulations.

The selected cleaning method must also be verifiable retrospectively – such as through the review of cleaning reports during inspections. Accordingly, documentation of hull cleaning must be retained by both the ship or mobile offshore unit and the company.

A safety margin is included in the penultimate paragraph: If cleaning is likely to cause increased pollution, it shall not be carried out. This may be particularly relevant in areas of Norway where no suitable methods are available for cleaning heavily fouled hulls. In such cases, it may be more appropriate to refrain from cleaning, as the use of inadequate methods in combination with extensive biofouling could result in increased pollution in Norwegian waters. This is especially relevant in areas lacking appropriate methods or service providers capable of safely cleaning hulls with macrofouling. If such hulls can only be cleaned without capturing most of the waste, it will often be more appropriate not to proceed with cleaning. Carrying out hull cleaning without sufficient collection of fouling residues – particularly in cases of significant macrofouling – increases the risk of spreading invasive species and may contribute to greater pollution in Norwegian waters. In such instances, it would be preferable for the ship or mobile offshore unit to postpone cleaning until a suitable method or provider capable of responsible cleaning becomes available.

The final paragraph presumes that hull cleaning includes both the removal and destruction of the biological material from the hull. In this context, it is also relevant to reference the duty of care outlined in the Regulations relating to alien organisms[6], where section 18 states:

"Any person that is responsible for the import, release or placing on the market of organisms, or that initiates projects that may result in the unintentional spread of alien organisms in the environment, shall act with due care to prevent the activities from having adverse impacts on biological diversity."

[6] Regulations of 19 June 2015 No. 716 relating to alien organisms)

Accordingly, extra caution must be taken during hull cleaning in Norwegian waters to prevent the release of invasive species. Existing requirements already mandate the collection of waste when using cleaning methods that may result in the discharge of anti-fouling agents. This follows from section 29-4 of the Pollution Regulations[7], which states that companies performing surface treatment must conduct such work under cover or – where this is not feasible – implement alternative measures to minimise pollution.

Templates and guidance materials may be developed at a later stage, as international frameworks evolve through work carried out by the IMO.

To section 11 Stricter requirements in specific areas or particular cases
This provision grants the NMA general and overarching authority to impose stricter requirements in designated areas or specific cases. An example of such a case could be the spread of the carpet sea squirt, or situations in which Norway receives information indicating the need to protect vulnerable coastal areas. When necessary to prevent the spread of invasive species, stricter requirements may therefore be introduced by regulation on short notice, beyond those set out in the current proposed Regulations. The term "short notice" should be understood to mean "immediately" or "without delay", and is intended to signal that standard consultation periods will not apply when invasive species pose a threat to specific areas within Norwegian territorial waters, or in other urgent situations requiring rapid protective action.

To section 12 Orders for removal of hull biofouling
This provision serves as a safeguard mechanism. It grants the NMA, as the supervisory authority, the power to order the removal of biofouling in specific cases to prevent the spread of alien organisms in Norwegian waters.

Although the Regulations set requirements for limited hull biofouling and mandate the use of the best available technology for cleaning, these measures alone do not guarantee that harmful invasive species will not be introduced via hull biofouling. This provision therefore authorises the supervisory authority to intervene based on a specific, case-by case risk assessment.

Under the first paragraph, the NMA may issue an order requiring the removal of biofouling assessed to pose a particular risk of spread. Heavy biofouling may indicate the presence of multiple invasive species on a hull, and removal must be conducted in the most responsible manner possible. The term "particular risk" refers to high-risk situations, such as the emergence of previously unknown species that quickly prove harmful, such as the carpet sea squirt, which has spread rapidly and extensively. In such cases, it may be appropriate to take biological samples from the hull, though time constraints may prevent waiting for analysis results before taking action.

Under the first paragraph, the supervisory authority may also impose specific conditions for how biofouling must be removed. By setting such conditions, the authority ensures oversight of the cleaning process. If only a general removal order is issued, there is a risk that ships or mobile offshore units will choose the simplest and seemingly most cost-effective solution, which could have negative environmental consequences. The authority's ability to set specific conditions ensures that biofouling is removed in a safe and environmentally responsible manner, based on a case-by-case assessment. These conditions may also include requirements regarding the geographical area where the cleaning must take place.

This provision is based on the exercise of discretion by the supervisory authority. Factors relevant to assessing a particular risk are outlined in the second paragraph and include, for example, the extent of biofouling on the hull and where the ship or mobile offshore unit operated prior to entering Norwegian waters. The phrase "such as" indicates that the factors listed are not exhaustive. Other relevant considerations may also apply. Examples

[7] Regulations of 1 June 2004 No. 931 relating to pollution control (Pollution Regulations)

include the detection of high-risk invasive species, significant macrofouling, or a long interval since the last cleaning.

The mildest and most common administrative measure is an order for the company to correct or bring the condition into compliance with applicable law or regulation, cf. section 49 of the Ship Safety and Security Act. Such an order constitutes a formal instruction and must be issued as an individual administrative decision.[8]

According to section 49 of the Ship Safety and Security Act, a deadline must be set for compliance. If the order is not complied with by the deadline, more stringent enforcement measures may be taken, such as coercive fines or enforcement actions, cf. section 49 second paragraph. The deadline will depend on the severity of the non-compliance; more serious cases will generally be given shorter deadlines.

Where hull cleaning is ordered, it must be conducted in accordance with section 10, which requires the use of the best available technology.

To ensure consistent enforcement of section 12, inspectors will receive training to ensure uniform application of the Regulations.

To section 13 Exemptions
The Regulations include a provision allowing the NMA to grant exemptions from sections 5, 6, 7, 9 and 10 upon written application. This provision is intended as a narrow exception, and a high threshold must be met for an exemption to be granted.

The NMA recognises that ships and mobile offshore units vary widely in terms of operational patterns, capabilities for managing biofouling and access to suitable cleaning services. Accordingly, the exemption provision may be used to address situations where the Regulations do not function as intended. Such cases may also help inform future amendments or additions to the Regulations.

Certain situations may make compliance particularly challenging. For example, the requirement to clean upon arrival in Norwegian territorial waters may have unintended consequences, particularly when a ship or mobile offshore unit has operated near the territorial boundary and the risk of introducing invasive species is considered low. In other cases, hull cleaning may be impractical due to the ship’s or mobile offshore unit's location or other operational constraints.

A range of factors may be considered when assessing an application for exemption. The provision specifically notes that consideration may be given to whether the ship or mobile offshore unit has attempted to comply with the requirement in question, and whether compliance would be disproportionately difficult in the specific case.

It is important to emphasise that an exemption is a discretionary measure, not an entitlement. The NMA will conduct a discretionary evaluation of each application individually.

Any exemption granted applies only to the specific cleaning instance described in the application. It does not constitute a general or long-term exemption.

To section 14 Entry into force and transitional provisions
The proposed rules are specific to Norway and, with few exceptions, there are no comparable requirements for biofouling management in other countries. This means that the authorities will require time to develop the

[8] Sigmund Simonsen – *Skipssikkerhetsrett, Det rettslige rammeverket for maritime operasjoner*, 2022, p. 360.

necessary capacity and expertise to implement and enforce the new regulations. Moreover, the NMA recognises that the industry will need time to adjust to the new requirements.

The target date for adoption of the Regulations is 1 January 2026, with entry into force set for 1 July 2028. In the lead-up to implementation, the NMA will provide information on the forthcoming Regulations, develop guidance materials and support the industry in preparing to comply with the new requirements.

III. Administrative and financial implications

1. Consequences for the industry

Companies will incur costs associated with establishing and implementing a plan for managing hull biofouling on their specific ships and mobile offshore units.

However, it is well documented that companies are focused on minimising biofouling through the use of anti-fouling systems, hull design and, where necessary, hull cleaning, driven by economic incentives. The NMA therefore considers that the industry is already well acquainted with biofouling management. Since there is already existing practice for companies to manage biofouling, the NMA assumes that the proposed rules will only lead to economic consequences of a relatively modest scale regarding the administrative work of establishing and implementing a biofouling management plan.

What is now being introduced is a formal obligation to manage biofouling, whereas until the Regulations come into effect, companies are responsible for handling it at their own discretion, in whatever way and at whatever time they consider appropriate. While these costs are difficult to quantify precisely, they are expected to be noticeable. When weighed against the significant environmental benefit of preventing the spread of alien organisms, the burden on individual companies is considered relatively minor. This represents an initial step, and a generous period has been proposed between the adoption of the regulations and their entry into force.

Hull cleaning will impose costs on the companies. The frequency of cleaning varies depending on the extent of biofouling, which in turn is influenced by the waters in which the ship or mobile offshore unit has operated. Consequently, costs will vary depending on operational areas, as biofouling levels are generally higher in some locations than others.

Companies are familiar with hull cleaning primarily because a clean hull reduces water resistance, leading to lower fuel consumption. Removing macrofouling from the hull can thus also lead to a positive gain in terms of reduced fuel costs, which will reduce the ship’s Carbon Intensity Indicator (CII).

It is also important to note that currently, there are only a few providers of biofouling cleaning services. During the initial phase, access to such services may be limited, which could result in somewhat higher costs associated with these services.

There is also reason to expect that the regulations will result in increased costs for shipowners when removing biofouling in Norwegian waters. This is primarily due to the requirement to use the best available technology, which may be more expensive than alternative methods.

2. Consequences for the authorities

The proposed regulations will entail an increased workload for the authorities, particularly in terms of supervision. At present, there is no formal regulatory framework for hull biofouling, and monitoring compliance with such a framework will represent a new area of responsibility for the NMA.

In connection with the consultation process, it is important that the authorities ensure up-to-date information on invasive species is made available on relevant websites. This will support the smooth implementation of the

regulations. During the initial phase, it will also be necessary to provide guidance on the regulatory requirements, while simultaneously developing both the competence and capacity required for effective supervision. This will place considerable demands on the NMA's resources.

The biofouling management plan may be integrated into a ship's existing ISM system and thus incorporated into the onboard management procedures already in place. Over time, verifying the presence of such a plan may be included in the standard inspection checklist. The objective is to integrate the supervision of biofouling management on ships and mobile offshore units into the routine inspection regime.

There is no proposal to require prior approval of these plans. However, they must be available for inspection upon request. Each plan must outline the measures and procedures for managing biofouling. If it is revealed that a plan is missing in accordance with the requirements of the regulations, an order may be issued pursuant to section 49 of the Ship Safety and Security Act. While the documentation is not subject to formal approval, it must be capable of being verified during supervision.
Details concerning the procedures for supervising ships and mobile offshore units under the Regulations on the Management of Hull Biofouling will need to be clarified further. A period of more than two years between the adoption and entry into force of the Regulations is proposed, allowing the supervisory authorities sufficient time to determine how best to apply and enforce the new requirements.

The regulatory framework includes a specific provision allowing the NMA to issue orders, as described in the commentary to section 12. Under this provision, the NMA may issue an order requiring the removal of biofouling if, for example, there is a significant risk of spreading invasive species into Norwegian waters. This may apply in situations where a ship or mobile offshore unit lacks a biofouling management plan and has accumulated substantial biofouling that has not been addressed.

This provision will make it necessary to inspect the degree of hull biofouling and to assess the environmental risk posed by such biofouling. Where appropriate, this may result in an order being issued under section 12. Such inspections will require training of inspectors, as biofouling is not currently a standard area of expertise. The regulations distinguish between microfouling and macrofouling. While the difference is often clear – with microfouling generally referring to a slime layer with limited hull coverage, and macrofouling comprising larger organisms – there are nuances that can be difficult to assess during supervision. It is therefore essential to uphold the principle of equal treatment in enforcement.

In conjunction with the introduction of the regulations, inspectors will need to be trained to ensure effective implementation. This training will support consistent assessments during inspections. As part of the training, inspectors will be given guidance on what to inspect, how inspections should be conducted, and the appropriate level of thoroughness. The NMA considers that this will entail significant administrative and financial implications.

The proposed introduction of biofouling management requirements is the result of careful consideration. The associated costs for all stakeholders are regarded as a necessary investment to secure the intended environmental benefits.

In the longer term, it may be appropriate to establish a notification system for ships and mobile offshore units entering Norwegian territorial waters, or to adapt an existing reporting system to capture relevant information. Such a system could, for example, help identify those operating under alternative biofouling management plans and provide visibility into scheduled biofouling removal activities.

Alf Tore Sørheim
Director General of Shipping and Navigation

Sjøfartsdirektoratet
Norwegian Maritime Authority

Linda Bruås
Head of Department
Legislation and International Relations

This document has been electronically approved, and therefore does not contain handwritten signatures.

Copy to:
The Ministry of Climate and Environment

Attachments
1 Proposed Regulations on the management of hull biofouling
2 List of consultative bodies