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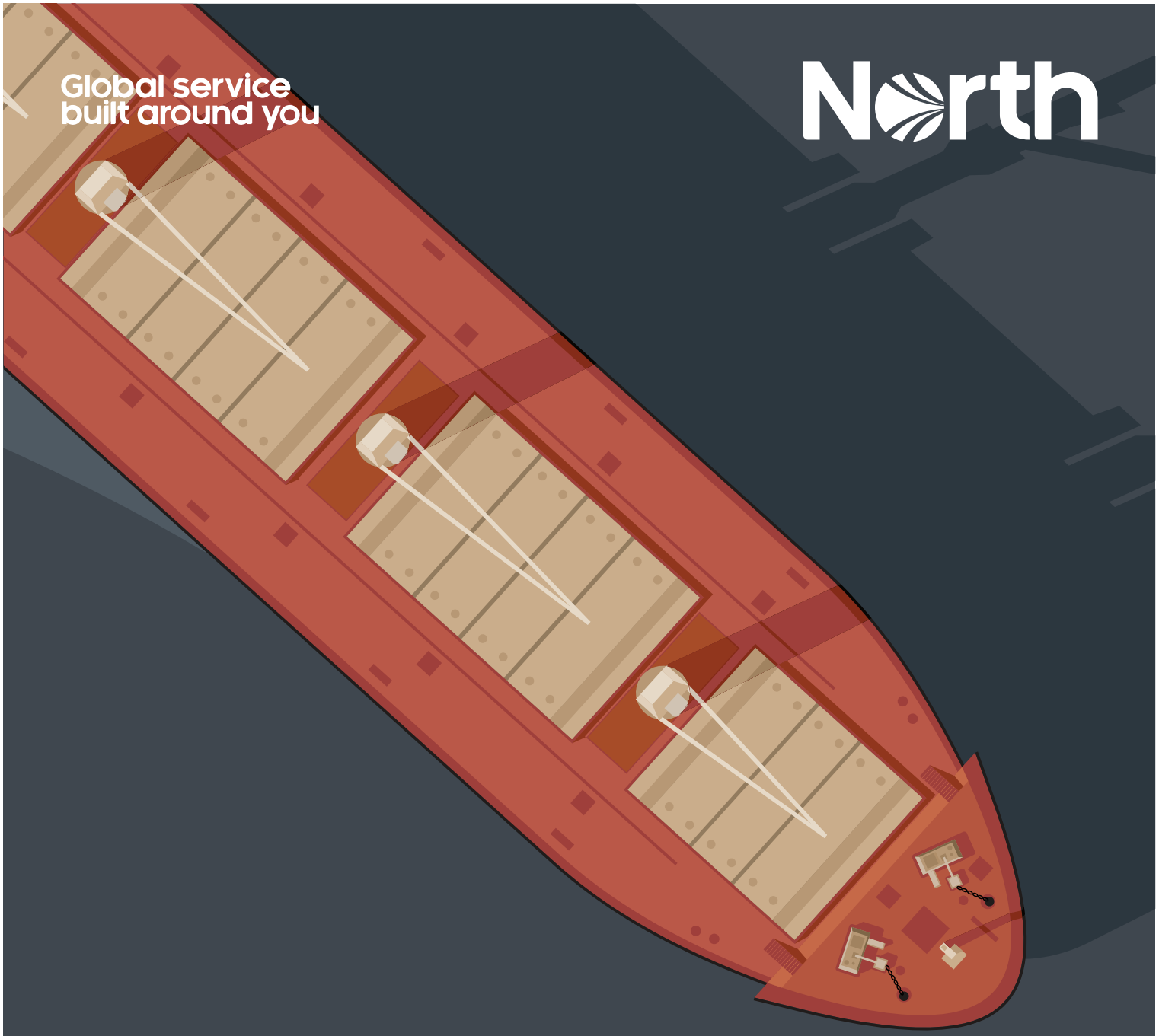

Ballast Water Management

Part 1:
Regulation

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Ballast water and its potentially adverse impact on the environment has been a hot topic for over a decade. The different rules that have been adopted to address this has brought uncertainty and caused concern in the industry.

Following the entry into force of the Ballast Water Management Convention in 2017 and its implementation to existing vessels on 8 September 2019, this is at the forefront of the minds of many shipowners. This is in addition to the continued challenges in complying with US legislation.

Regulations

A ship may be subject to a number of different regulatory regimes relating to ballast water management depending on location.

Why the need for regulation?

The problem arises when a vessel's ballast water contains marine life. Sometimes the organisms within the ballast water can establish themselves in the local area when the water is pumped out. Occasionally these species can become a problem.

The spread of marine life is normally controlled by natural barriers such as temperature and land masses but widespread use of water as ballast, development of larger and faster ships and rapidly increasing world trade means these natural barriers are increasingly being by-passed. The transfer of invasive marine species into new environments via ships' ballast water has been identified as a significant environmental threat.

Examples of invasive species that have caused ecological and economic disruption include European Zebra Mussels, Red Tides (Algal Bloom), Asian Kelp and the North American Jellyfish.

Ballast Water Management (BWM) Convention

The International Convention for the Control and Management of Ships' Ballast Water and Sediments – more commonly known as the Ballast Water Management (BWM) Convention – was adopted by IMO in 2004.

It requires all ships of 400 GT and above trading internationally to manage their ballast water and sediments to certain standards and maintain a ship-specific ballast water management plan.

The BWM Convention entered into force on 8 September 2017, with a delayed implementation of the requirement to fit treatment systems to **existing** vessels until 8 September 2019.

To comply with the convention, a vessel will need an International Ballast Water Management Certificate (IBWMC). In order to obtain this, a vessel must have:

- An approved ballast water management plan (BWMP) that provides details on how compliance will be achieved with the necessary procedures.
- Technical documentation and type approval certificate for the ballast water treatment system fitted to the vessel.
- A ballast water record book (BWRB). This must remain on board the ship for at least two years after the last entry has been made and following that held by the shipowner for at least three years.

Regulations (cont.)

Ballast Water Management (BWM) Convention (cont.)

A vessel will undergo an initial survey and the certificate should be valid for five years subject to annual surveys and an intermediate survey in the second or third year. Flag States that have not ratified the BWM Convention should issue the vessel with a Statement of Compliance in place of an IBWMC.

There are two performance standards:

- D-1 which is based on ballast water exchange
- D-2 which addresses ballast water treatment systems and specifies the levels of viable organisms that are allowed to remain in the water after treatment.

Following the entry into force in 2017, vessels whose keels are laid on or after the 18 September 2017 must comply with the D-2 standard.

However, a period of transition currently exists which allows existing vessels using the D-1 method ballast water exchange as the method of compliance to continue this way. This period is coupled, perhaps rather unusually, to the vessel's International Oil Pollution Prevention (IOPP) Certificate renewal survey.

Existing vessels have up until its next IOPP Certificate renewal survey after 8 September 2019 to comply. After this IOPP renewal survey, the vessel must meet the discharge standard D-2 by using a type approved treatment plant.

This effectively means that vessels whose keel were laid before 8 September 2017 are likely to need to install an approved ballast water treatment system at some point between 8 September 2019 and 8 September 2024, depending on the date of IOPP certificate renewal.

United States

The United States are not a signatory to the IMO BWM Convention and enforce their own regulations. Three separate laws passed by Congress give authority to regulate ballast water management to two separate federal government agencies.

The two agencies are the United States Coast Guard (USCG) and the United States Environmental Protection Agency (EPA).

USCG Final Rule

In 2012, the USCG issued the final rule "Standards for Living Organisms in Ships' Ballast Water Discharged in U.S. Waters".

The rule applies to any ships planning to discharge ballast water in US waters. It addresses ballast water exchange, treatment and sediment management.

The timeline for compliance with the USCG final rule is shown in the below table:

	Ship's BW Capacity	Date of construction	Date of compliance
New Ships	All	On or after 1 Dec 2013	On delivery
Existing Ships	Less than 1,500m^3	Before 1 Dec 2013	First scheduled dry-docking after 1 Jan 2016
	1,500 – 5,000m^3	Before 1 Dec 2013	First scheduled dry-docking after 1 Jan 2014
	Greater than 5,000m^3	Before 1 Dec 2013	First scheduled dry-docking after 1 Jan 2016

To comply with the USCG rule, vessels discharging ballast water in US waters have the following options:

- Zero discharge.
- Discharge using a USCG approved ballast water treatment system.
- Discharge to a shore reception facility or to another vessel for the purpose of treatment.
- Ballast with potable water from a US public water system.

The USCG regulations have additional requirements that go beyond those of the IMO BWM Convention that include:

- It is a requirement to submit a report form 24 hours before calling at a US port
- The vessel specific ballast water management plan must also include the following:
  - Sediment removal through regular cleaning of ballast tanks
  - Rinsing of anchors and chains when weighing anchor
  - Regular hull cleaning
  - Maintain records of ballasting and fouling

AMS and the USCG extension process

Vessels entering US waters without an approved system can make a request to the USCG for an extension. The vessel can then request permission to achieve compliance through the ballast water exchange method or they can use an alternate management system (AMS) which has been accepted by the USCG.

Acceptance of an AMS is temporary (maximum five years) and does not mean it will be given USCG type approval in the future. Furthermore the USCG has not given AMS acceptance to every IMO D-2 approved system.

Up until December 2016, no ballast water treatment systems had achieved USCG approval. This meant that granting extensions was quite straightforward as there was no ability to comply with a type approved system.

But since then, numerous systems have been granted approval. This is on one hand good news for shipowners as they now have firm options on achieving compliance. On the other hand, the criteria for granting extensions to shipowners is now stricter.

The USCG advises that when requesting an extension, a shipowner must now provide an explicit statement supported by documentary evidence detailing the reasons for non-compliance, such as delays in commercial availability of the treatment systems.

EPA – Vessel General Permit (VGP)

The discharge of ballast in US waters also comes under the National Pollutant Discharge Elimination System (NPDES) of the Clean Water Act. Since 2013, the vessel general permit (VGP) system has included ballast water discharges under 'discharges incidental to the normal operation of a vessel'.

Additional to USCG requirements, the current VGP requires the calibration of sensors and periodical sampling of biological indicators and residual biocides.

The 2013 VGP requirements are expected to remain in force until EPA introduces new regulations as a result of the Vessel Incidental Discharge Act (see below). VIDA allows up to four years for these new regulations to come into force.

Vessel Incidental Discharge Act (VIDA)

This Act was signed into U.S. law in 2018 and impacts the USCG Final Rule and the Vessel General Permit (VGP) system.

Until the Act came into force, the USCG and the EPA separately regulated ballast water and other vessel discharges. This often caused confusion, in particular their different approaches to approving ballast water treatment systems and granting extensions for vessels without treatment systems.

VIDA has established a new framework. EPA now leads on establishing standards on ballast water and the USCG leads on monitoring and enforcement.

Individual U.S. States will be allowed to establish no-discharge zones for areas that require additional protection. Individual US states may also adopt more stringent legislation that is above and beyond federal regulations.

VIDA has established a new framework. EPA now leads on establishing standards on ballast water and the USCG leads on monitoring and enforcement.

Regulations (cont.)

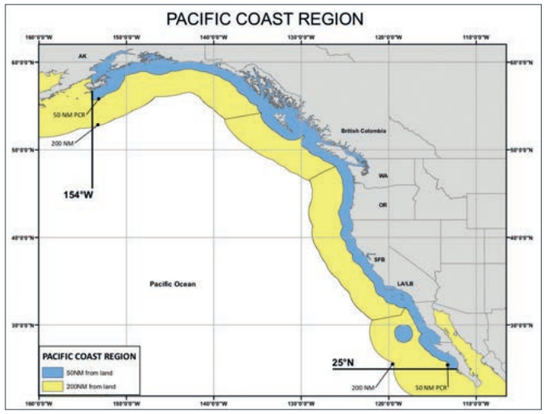
California

The California State Lands Commission (SLC) adopted new rules on ballast water management that took effect in the State of California on 1 July 2017. These rules codified enforcement of the Californian Marine Invasive Species Act (MISA).

MISA applies to vessels over 300GT that are capable of carrying ballast water. The ballast water management requirements address:

1. Vessels arriving in California Waters from a port or place outside the Pacific Coast Region.
2. Vessels arriving in California Waters from a port or place within the Pacific Coast Region, with ballast water from the Pacific Coast Region.

The Pacific Coast Region (PCR) comprises the waters within 200nm of land on the Pacific Coast of North America east of 154°W longitude and north of 25°N latitude, excluding the Gulf of California.



The California MISA does not provide for an exemption for vessel deviation, whereas federal rules may allow this. The SLC clarifies this position in their letter of 2014 which can be read here **www.nepia.com/media/775259/MISPLetter14Aug14.pdf**

The SLC confirmed in their letter of July 2014 that they accept the use of either a USCG type approved ballast water treatment system or a USCG accepted alternate management systems (AMS) as an alternative to their stated ballast water exchange requirements. The letter can be read here **http://s3-eu-west-2.amazonaws.com/north-staging/wp-content/uploads/2019/05/01222121/USCGTALetterFinal.pdf**

National/Domestic

Different countries or geographical regions have adopted particular requirements or restrictions on ballast water discharge.

Some of these countries may not be signatories to the IMO BWM Convention whereas others may be signatories but have adopted more stringent measures above and beyond those of the Convention.

Lloyd's Register has produced a useful guide on these requirements and can be found here **https://s3-eu-west-2.amazonaws.com/north-live/wp-content/uploads/2020/05/20113612/LR_s_National_Ballast_Water_Management_Requirements_22.03.19-1.pdf**

Discharge performance standards

In 2020, the Californian Marine Invasive Species Act (MISA) will require strict – and quite possibly unachievable with current technology – ballast water treatment performance standards.

The discharge standards for the USCG are similar to IMO BWM Convention D-2 standards. The numerical values for organisms and microorganisms are the same.

However, prior to VIDA, there was a significant difference between the two standards. The USCG regulation stated that organisms must not be *"living"*. This was in contrast to IMO international ballast water regulations which refer to *"viable"* organisms (their ability to reproduce).

VIDA amended the USCG regulations by accepting that organisms that cannot reproduce (*"non-viable"*) are not considered *"living"*, therefore aligning with IMO discharge standards.

In 2020, the Californian Marine Invasive Species Act (MISA) will require strict – and quite possibly unachievable with current technology – ballast water treatment performance standards. These are significantly more stringent in comparison to the USCG Final Rule and IMO International Ballast Water Management Convention:

The performance standards of MISA demand that the organisms must be dead, whereas other regulations refer to viable organisms, which are not dead but unable to reproduce.

The Californian interim performance standards take effect on 1 January 2020 for newly constructed vessels or the first scheduled dry docking on or after 1 January 2020. The final performance standard of zero detectable living organisms for all organism size classes is scheduled to be implemented on 1 January 2030.

Organism Category	USCG and IMO-D2 Standard	California's Interim Standard
Larger than 50µm	Less than 10 cells/m^3	No detectable living organisms allowed
10 to 50µm	Less than 10 cells/ml	Less than 0.1 living organisms per ml
Less than 10µm	Not applicable	Less than 1,000 living bacteria per 100ml Less than 10,000 living viruses per 100ml
E-coli	Less than 250 cfu per 100ml	Less than 126 cfu per 100ml
Intestinal Enterococci	Less than 100 cfu per 100ml	Less than 33 cfu per 100ml
Toxicogenic Vibrio Cholera	Less than 1 cfu per 100ml or Less than 1 cfu per gram (wet)	Less than 1 cfu per 100ml or Less than 1 cfu per gram (wet)

Ballast water management plans

Both the IMO BWM Convention and the USCG Final Rule require ballast is managed in accordance with a ship-specific Ballast Water Management Plan.

The purpose of the plan is to assist the ship in complying with the regulations in a safe manner and provide information to PSC officers on the ship's ballast handling system and confirm that ballast water management can be effectively planned. The plan also details training requirements on the operation of the ballast water treatment plant.

The plan is a living document that should be routinely reviewed and updated to reflect any changes in legislation and any new rules.

The USCG does not formally approve BWM plans developed under 33 CFR 151.2050(g). They will, however, review the plans during vessel inspections.

The IMO has issued guidance on ballast water management plans in MEPC.127(53) *Guidelines for ballast water management and development of ballast water management plans G4* (as amended by MEPC.306(73)).

Credit: Image supplied by Wärtsilä.

Contingency planning

In the event of a non-compliance situation arising, the vessel and the relevant port State should work together to find a solution. Together, they should consider possible contingency measures such as:

- discharge ballast water to another ship or to an appropriate shipboard or land-based reception facility, if available
- manage the ballast water or a portion of it in accordance with a method acceptable to the port State
- carry out a ballast water exchange to an approved plan, taking into account the potential disruption to cargo operations and port activities
- modify sailing or ballast water discharge schedules
- retain ballast water on board the ship
- any other actions predetermined in the vessel's Ballast Water Management Plan

The port State, the flag State and the ship should work together to agree on the most appropriate solution to allow for the discharge of ballast water found to be non-compliant.

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Ballast water record book

The ballast water record book (BWRB) is essential evidence and may be checked by PSC officers during routine inspections or come under scrutiny if the vessel is suspected of a violation.

Routine entries in the BWRB should include:

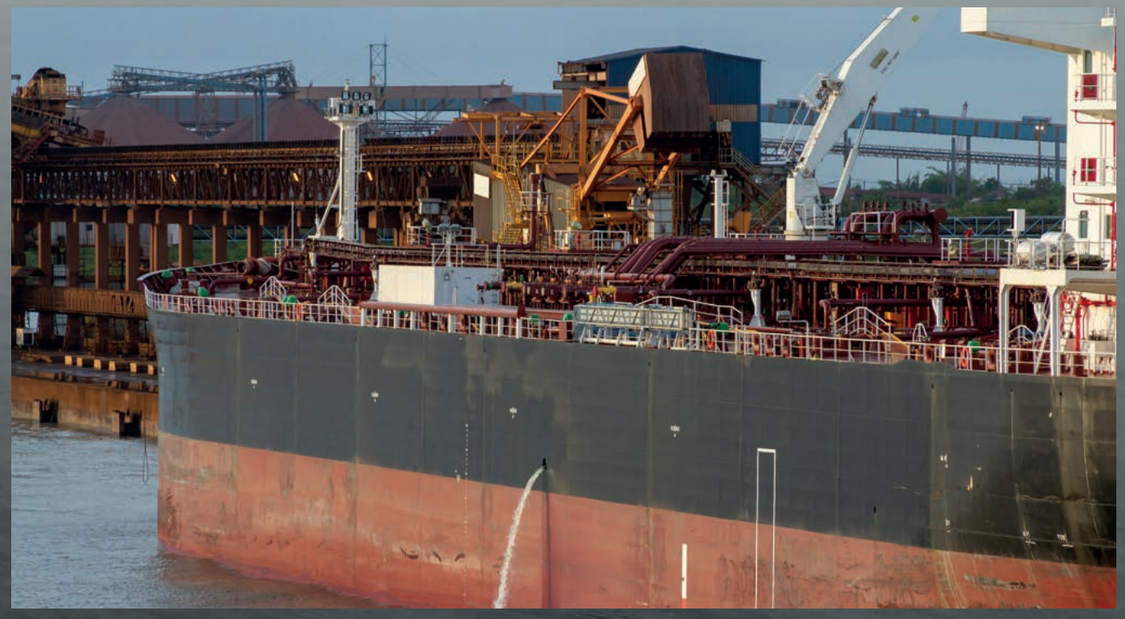
- When ballast water is taken on board
- Whenever ballast water is circulated or treated for management purposes.
- When ballast water is discharged into the sea.
- When ballast water is discharged to a reception facility

Details of these activities should include a log of location, volume and depth of water.

The BWRB should also be used to record any exemptions that have been issued, any accidental or exceptional discharges and any instances where ballast water was not exchanged in accordance with the relevant legislation.

Proving compliance: Top tips

- Have the necessary documents available for inspection:
  - IBWMC Certificate
  - Ballast Water Management Plan
  - Ballast Water Record Book
  - Any applicable extension/exemption certificates
- Ensure the BWRB is up to date and accurate
- Do not attempt to falsify or tamper with evidence and documents (such as the BWRB)
- Ensure crew are familiar with the operation of the treatment plant and confident in its use
- Crew should be familiar with sampling locations and sampling procedures
- Be prepared to show inspectors technical documentation for the treatment system
- Make sure treatment plant maintenance and repair records are complete and up to date.



Enforcement and compliance

Broadly speaking, countries are free to decide how they enforce ballast water regulation and how non-compliance will be penalised.

International

In Article 8 of the BWM Convention, a vessel found violating the convention can be subject to action by both the flag State and the country in which the violation took place. Penalties and sanctions are therefore dependent on the relevant jurisdiction.

Article 9 of the BWM Convention permits sampling of a vessel's ballast water as part of the initial PSC even if there are no clear grounds for concern.

However, IMO Resolution MEPC.252(67) *"Guidelines for port State control under the BWM Convention"* expands on Article 9. The guidelines promote a four-stage inspection process:

- the first stage, the "initial inspection", should focus on documentation and check that operators are trained and familiar in the use of the treatment system
- the second stage is the "more detailed inspection" where the PSC inspector checks that the treatment system is operational and has been operated in accordance with the ballast water management plan and its design parameters.
- the third stage identifies whether the performance standard is being met. This may require PSC to take samples for 'indicative analysis'. The results of which may lead them to decide whether detailed analysis is necessary to ascertain compliance
- the fourth stage, if necessary, incorporates a detailed analysis of sampled ballast water to verify compliance.

If the visiting PSC inspector follows the IMO Guidelines, then the risk of a vessel being subject to sampling and testing of its ballast water can be much reduced by satisfying the requirements of the first stage of the inspection process. It is therefore in the crew's best interest to show that the vessel, its equipment and ballast water treatment system are in good order, the documentation and certification are in order and the crew are familiar in its use.

The Guidelines further state the time required for analysing the indicative samples should not be used by PSC as a basis for unduly delaying the vessel.

See part 2 of our ballast water guidance to learn more about sampling.

United States

In the United States, federal penalties are addressed in 33 CFR Part 151 (Subpart D). It states that a person who violates is liable for a civil penalty not to exceed $35,000. Each day of a continuing violation constitutes a separate violation. Also, any persons who knowingly violate the regulations are guilty of a class C felony.

A vessel could very well be subject to additional penalties imposed by the US State in which the violation occurred.

Shipowners should be mindful that historically the US authorities have not just concerned themselves with environmental pollution occurring in their territorial waters. As repeatedly shown in incidents involving illegal bilge water discharges, any efforts by the crew to falsify records or lie to officials will be met with criminal charges of 'obstruction of justice' and 'witness tampering', regardless of where the actual operation took place.

It is therefore essential that all documentation and records are properly maintained and accurate.

Ratifying States (July 2019)

Albania
Antigua & Barbuda
Argentina
Australia
Bahamas
Bangladesh
Barbados
Belgium
Brazil
Bulgaria
Canada
Congo
Cook Islands
Croatia
Cyprus
Denmark
Egypt
Estonia
Fiji
Finland
France
Georgia
Germany
Ghana
Greece
Grenada
Guyana
Honduras
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