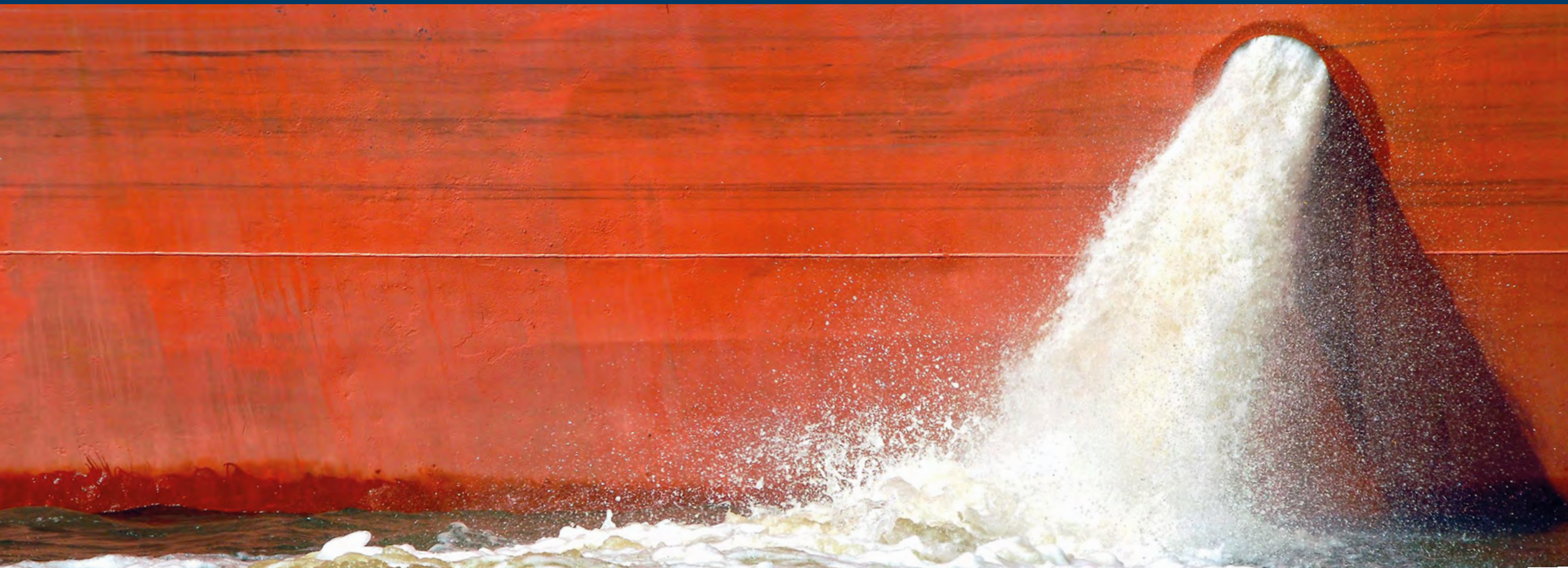


Ballast water management

Your complete guide to Lloyd's Register's ballast water management services



Whatever your role in the marine industry, we can help you minimise the impact of the Ballast Water Management Convention on the way you do business.

Who this guide is for and what it does

If you are a shipowner or operator, a designer or builder, an equipment manufacturer, port owner or flag Administration, this guide is for you.

The IMO's Ballast Water Management (BWM) Convention will have an impact right across the shipping industry, affecting a wide variety of people, and presenting different challenges and pressures.

So we have created this guide to provide a clear outline of the Convention's implications for each relevant shipping sector, and to highlight how we can help you minimise its impact on the way you operate.






Our range of dedicated services can help you make the best decisions in all aspects of ballast water management.

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The BWM Convention at a glance

The Ballast Water Management Convention requires ships to manage their ballast water on every voyage. This affects more than 99% of the world's fleet.

Introduction

To limit the impact of invasive species on the marine environment, ballast water must be managed, either by exchanging it or by treating it using an approved ballast water treatment system.

All ships will be required to have an approved Ballast Water Management Plan on board and a Ballast Water Record Book. All ships of 400 gross tonnes (gt) and above must also be surveyed and issued with an International Ballast Water Management Certificate or a Ballast Water Management Certificate of Compliance.

Most deep water ships are expected to comply by installing a fixed ballast water treatment system.

All compliance technologies are subject to approval through specific processes and testing guidelines, to make sure they meet the relevant IMO standards, are sufficiently robust, have minimal adverse environmental impact and are suitable for use in the specific ship-board environment.

Up to **five billion** tonnes of ballast water is transferred throughout the world annually



Transfer of **10,000** unwanted species daily

What this means for you

- Exchange water
- Treat water
- Discharge water to reception facility



USCG

United States Coast Guard national requirements are already in force

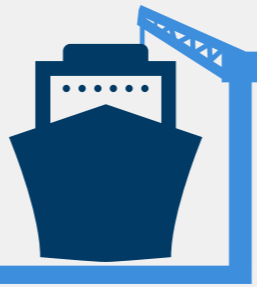
Survey and certification applies to **all** ships \geq 400gt



Over **68,000** vessels impacted by the BWM Convention



Impacts **99.9%** of all new build tonnage on order



Source: IHS, September 2015

How this impacts you

Know what is required

The BWM Convention imposes a challenging international ballast water discharge standard to manage the transfer of invasive aquatic species.

National regulatory bodies can also introduce regulations in response to ballast water management concerns. The most prominent of these is the United States Coast Guard (USCG), which has established both regulations and guidelines to prevent the introduction and spread of nuisance species.

Have a strategy

You need to make some key decisions to determine what you do and when.

Identifying, formulating and implementing the right response plan are crucial to remaining competitive in today's crowded marketplace.

Making the best choices requires an in-depth understanding all of the options available and a thorough assessment of the commercial, technical and safety risks. You need to focus on minimising the chances of non-compliance, wasted time and money, or damage to your business or reputation.

Ensure resource availability

Building in-house capability is time-consuming and costly.

To ensure that your organisation has all the skills and experience needed to meet your requirements, you will need to combine multiple disciplines.

From managing technical implementation to changing your management processes or training your staff, you need a broad range of capabilities to respond fully to the introduction of this new regulation.

Understand the risks

Managing risk is at the core of any business.

With the new risks that the BWM Convention will introduce to your business, you may want to consider whether you have the experience to identify them all.

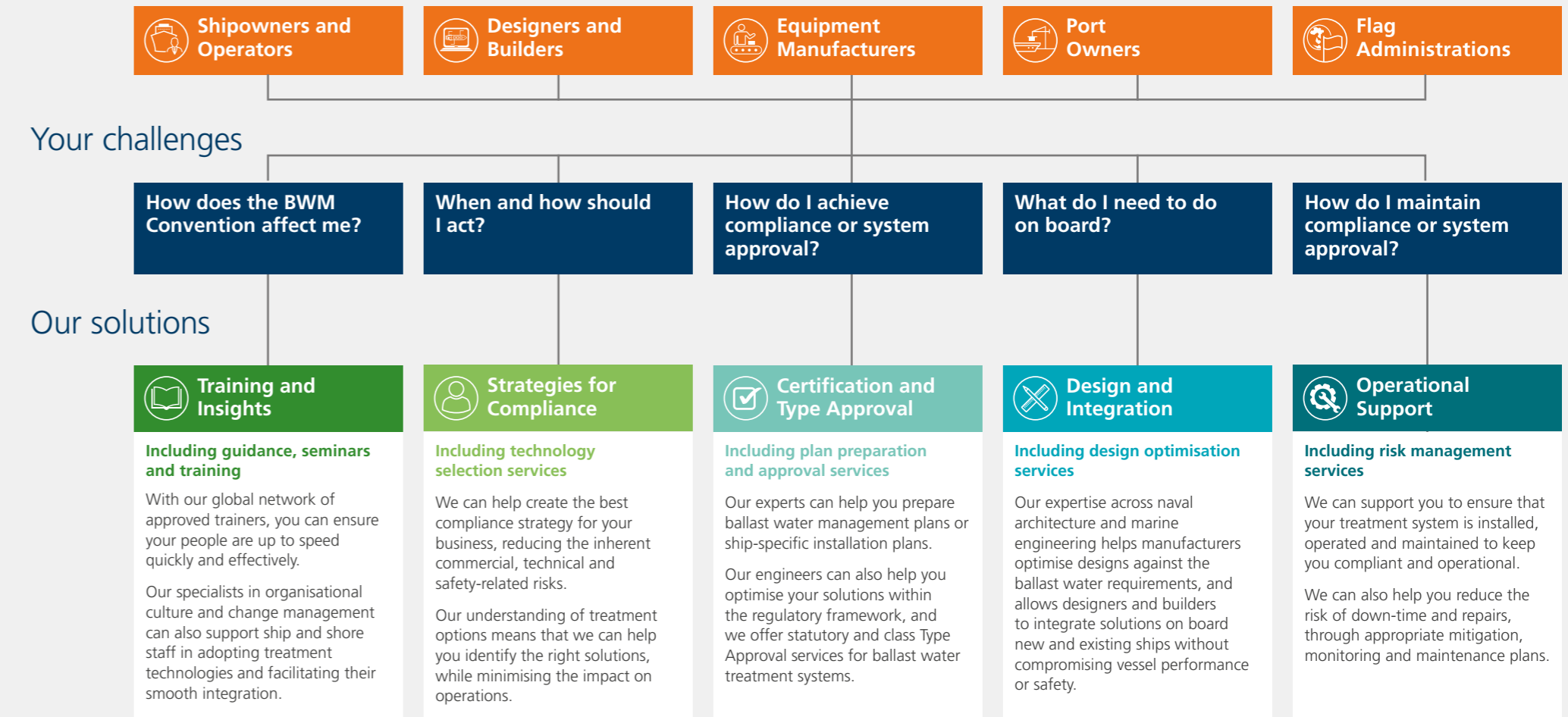
Indeed, identifying the risks – commercial, technical or safety-related – is only half the story. The real challenge is to successfully mitigate them in order to increase your chances of success.





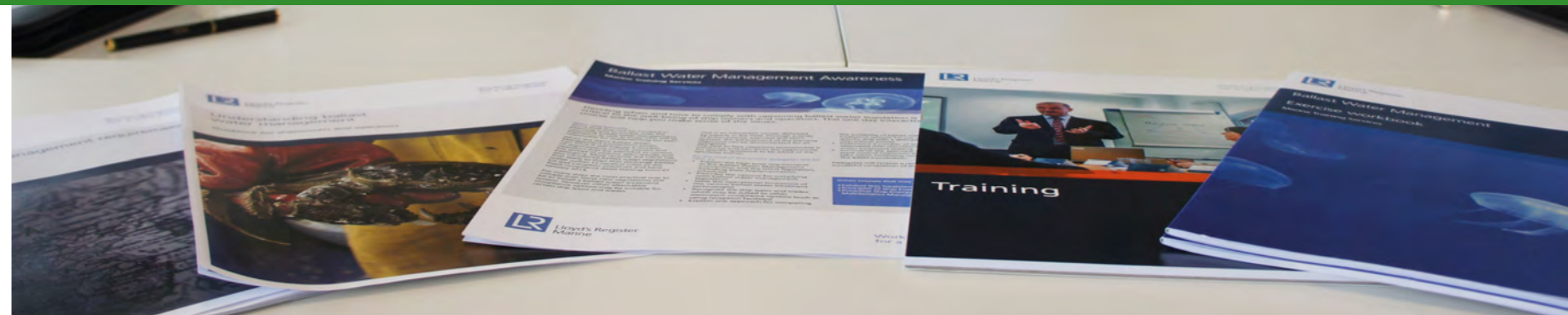
The dedicated services you need

Because we understand the pressures you face, the operational challenges you have to overcome and the intricacies of the compliance standards you have to meet, our services are tailored to your needs.



Training and Insights

With the right tools you can enable your people to do their work better, more quickly and more profitably. Our publications, seminars, training courses and specialists give you all the knowledge you need.



Overview

- Guides and Seminars
- Training Courses
- Change Management
- Crew Awareness
- Competence Management

Guides and Seminars

Our publications and seminars contain everything you need to know about the international and national ballast water management requirements.

They also give guidance on preparing for implementation – including what to consider when selecting, procuring and installing a ballast water treatment system.

Training Courses

Deciding when and how to comply with current and future ballast water legislation is critical.

Our one-day interactive Ballast Water Management Awareness training course draws on our operational experience to give you a practical approach to understanding the issues.

We also offer bespoke training courses to meet your specific needs. With a network of expert trainers we deliver public and in-company courses globally.

Change Management

It is vital that new technology and processes are integrated smoothly into your organisation. Our human factors specialists provide change facilitation, management process development and leader training that can help you implement change in a controlled and effective manner, while engaging and motivating your employees.

Crew Awareness

Any new technology or process introduced on board ships needs to be understood and accepted by the crew. We provide awareness training to ensure your crew understands the BWM Convention, and the importance of using and maintaining the technologies and processes you choose.

Competence Management

To successfully implement and manage any new operations it is fundamental to understand the knowledge, skills and behaviours the crew need to have. Our human factors experts can help you identify (and then fill) any crew competency gaps to ensure the introduction of new equipment and procedures are supported and enabled by the crew from day one.

“
A good and progressive course for understanding the challenges.”
– Wilhelmsen Lines Car Carriers

“
Excellent and knowledgeable presenter, extremely beneficial and relevant.”
– National Marine Facilities Sea Systems

Over
300
delegates...

...trained in
24 courses...

...all over the world.

Strategies for Compliance

We cut through the complexities of compliance to give you the clarity you need to make the right decisions, saving you time, resources and costs.



Overview

- Regulatory Advice
- Compliance Strategy
- Technology Selection
- Port Feasibility Studies
- USCG Extension Letters

Regulatory Advice

The BWM Convention imposes a challenging international ballast water discharge standard, while national bodies can also introduce regulations in response to country-specific ballast water management concerns. We provide a bespoke advisory service that takes into consideration your technical and operational profile to determine how your business is affected.

Compliance Strategy

For shipowners and operators, we assist you in identifying the most suitable strategy for each vessel in your fleet, so that you comply with the international and national regulations in the best possible way. We work with you to identify and manage safety, technical and commercial risks, to minimise the impact on your operations and maximise your return on investment.

Technology Selection

With so many options available, and a typical solution costing upwards of USD 500,000, we help you identify the most suitable ballast water treatment system for each vessel in your fleet, making sure that the choice aligns with your technical and operational profile.

While most ships will comply with upcoming ballast water legislation by installing a ballast water treatment system, alternative options can be used. We can help you understand the advantages and disadvantages of the various options and, if suitable, work with all stakeholders to develop a feasibility study and robust risk assessment.

Port Feasibility Studies

For some ports, the BWM Convention will provide opportunities to develop ballast water reception facilities. We offer a complete port feasibility assessment to establish whether your port is suitable, and to identify the opportunities and risks associated with different approaches.

USCG Extension Letters

Due to a lack of approved systems and a complicated regulatory framework, substantial uncertainty still surrounds USCG ballast water management compliance.

You can apply for an extension of the compliance date to allow time for approved systems to become available.

We can support you by explaining the commercial risks associated with the extension approach, preparing extension letters on behalf of owners and guiding you through the application process.

Helping NORDEN identify the right ballast water treatment system

Their challenge

Danish ship operator, NORDEN, asked us to evaluate the suitability of a number of ballast water treatment systems that they had pre-selected for their fleet of new build bulk carriers and product tankers.

Why Lloyd's Register?

This was a key investment for NORDEN and they wanted assurance that any system they invested in would present the least risk – not just in terms of compliance, but also in terms of cost and future suitability.

Our solution

With our knowledge of the regulations and our expertise in treatment technologies, we understood the challenges NORDEN faced, and the key differences between the systems being considered. We collated detailed data from each system manufacturer and then generated a ranking for each system against key criteria – helping NORDEN make the decision that was right for them.

The outcome

The system ranking enabled the company to make an informed decision, and they went on to select their preferred treatment system – they are now ready and prepared for entry into force.



As a globally operating shipowner, NORDEN is increasingly facing complex legislation that impacts on our business. Ballast water treatment systems are one such example and the competence of Lloyd's Register has greatly assisted our decision making.

– Lars Lundegaard, Senior Vice President

Certification and Type Approval

Rules, regulations and paperwork: when everything has to be exactly right, you can rely on our experience and integrity.



Overview

- Plan Preparation
- Statutory Plan Approval
- Statutory Type Approval
- Class Approval
- USCG Independent Laboratory Testing
- International Ballast Water Management Certificate
- Installation Approval

Ballast Water Management Plans

Plan Preparation

Once the BWM Convention is in force, all ships will be required to have on board an approved ship-specific Ballast Water Management Plan. We can prepare this with you or for you.

Statutory Plan Approval

Once you have a Ballast Water Management Plan in place, you will need to have it approved against the IMO requirements. We offer this as a global statutory approval service on behalf of over 120 flag Administrations.

Ballast Water Treatment Systems

Statutory Type Approval

As a Recognised Organisation, we can Type Approve ballast water treatment systems on behalf of flag Administrations as part of the IMO's treatment system approval process.

Class Approval

As a classification society, we can approve ballast water treatment systems against the LR Rules, giving individual systems the required approval for use on LR classed ships.

USCG Independent Laboratory Testing

As an approved independent laboratory for the USCG, we are authorised to conduct ballast water treatment system testing against the USCG regulations. This is a fundamental step in obtaining the approval needed for a treatment system to be used within United States waters.

Vessel Certification

International Ballast Water Management Certificate

Once the BWM Convention is in force, all ships of 400gt and above will be required to have international certification. Ships whose flags have ratified the Convention will require an International Ballast Water Management Certificate. For all other ships, a Ballast Water Management Certificate, Statement or Document of Compliance will be issued. We provide you with this service as part of our Recognised Organisation role.

Installation Approval

Ballast water treatment system installations on board LR classed ships need to be approved in accordance with the applicable LR Rules. This ensures that the installation on board satisfies our high safety standards.

Our Certification and Type Approval services by location



Design and Integration

We thrive on complex engineering challenges. Our design and integration solutions help you take technologies and make them a practical reality.



Overview

- System Integration
- Reduced-Ballast Design
- Design Assurance
- Operational Assurance
- Project Management
- Design Optimisation
- Human Factors in Design

System Integration

Whether it is for a new build or a retrofit, installing a ballast water treatment system on board a ship is complicated and challenging. We provide specialist naval architecture and marine engineering advice to make this transition smooth, no matter how complex your chosen solution.

Reduced-Ballast Design

We embrace innovation. We can work with you on pioneering reduced-ballast designs that provide substantial performance improvements over conventional vessel designs.

Design Assurance

Our expertise and independence mean we are ideally suited to provide assurance for many aspects of new or novel ballast water treatment solutions, including giving concepts a 'reality check' by considering how they will be applied to a specific ship or operating profile. This gives you confidence to progress your design and reduces the commercial and technical risks for potential investors and partners.

Operational Assurance

We can independently verify the design and engineering of your treatment technology – including prototypes. We use a variety of techniques such as advanced computational fluid dynamics (CFD) modelling, full-scale trials and in-service measurements to model flow rates and other system characteristics to provide operational assurance.

Project Management

Installing a ballast water treatment system on board a ship is a complex undertaking with multiple stakeholders. We provide a project management service that acts as a bridge between owner, shipyard and equipment manufacturer, smoothing out the process for even the most complicated solutions.

Design Optimisation

If you are seeking to optimise your treatment technology design, it is vital to consider how the changes will affect the system's compliance with the BWM Convention. Our technical experts can provide support throughout the optimisation process.

We can review your design, suggest improvements and assess its suitability against national and international requirements. This ensures that the system can be optimised while minimising the risk of non-compliance.

Human Factors in Design

Ships' crews and shore staff need to be able to adapt to and use new ballast water technologies and procedures efficiently and safely. Our human factors integration services make sure that people and their needs are considered from the system concept stage, through to design and build.

We work with all stakeholders to make sure that systems are designed 'right first time' with the crew and staff in mind, helping to reduce time and costs while ensuring safe operations.

Helping design reduced-ballast tankers

Our joint achievements

Working closely with Dalian Shipbuilding Industry Co. Ltd (DSIC) and Dalian Ocean Shipping Co., we helped them create new tanker designs that reduce ballast water requirements by 40%.

The range of benefits

Named 'Clear Advantage' and ready to be built, the designs provide substantial performance improvements over conventional tanker designs. The benefits are reductions in energy consumption during ballast passages; a reduction in ballast water treatment capacity and the associated time, energy and cost penalties incurred in treating ballast water; and a reduction in the harmful effects of mud or silt.

This last benefit is key for ship operators on China's major rivers, where mud and silt are significant operational hazards. Intake of river water ballast during cargo discharge can result in substantial volumes of mud or silt accumulating after operations, leading to as much as 1,000 tonnes becoming 'stuck' in a VLCC's ballast water tanks.

The combined impact of the loss of cargo capacity, the economic drain of transporting the mud during laden passages and the eventual cost of removing the muddy slurry – as well as the strain on ballast water treatment systems – have all been reduced in the Clear Advantage designs.

“

These new designs are not only suitable for some of China's silt-laden water ports, but can significantly reduce energy consumption while in ballast condition...to bring competitive advantages to owners.”

– Mr Yu Fengping, DSIC President



Operational Support

We not only help you achieve compliance, we help you maintain it. Plus our experts can identify your operational risk points and minimise your down-time.

- Overview
- Maintenance Planning
 - Criticality Analysis
 - Failure Investigation
 - Risk Mitigation

Maintenance Planning

To reduce the risk of machinery and system down-time, you need a solid maintenance strategy. Working with both ship and shore staff, our experts in condition-based maintenance can help you establish the best strategy. We help you ensure your maintenance team is equipped with the latest knowledge of machinery condition, the appropriate diagnostic tools, and the skills to use them. Not only can this strategy improve reliability, but it can also lead to a significant reduction in unnecessary and costly work.

Criticality Analysis

Criticality analysis identifies potential ballast water treatment system failures early, so they can be managed as soon as possible – improving safety and reliability. We have extensive experience in performing criticality analysis, and can assist from the earliest design stage through to the point of system selection.

Failure Investigation

If your treatment system suffers a mechanical failure, our engineering consultants and human factors specialists can provide independent troubleshooting and analysis to establish the root cause. Using a combination of field measurement, advanced modelling and engineering analysis to look at the system's dynamics, and incident investigation techniques to understand any organisational or human-element causes, our experts can determine why a failure has occurred and provide recommendations to prevent it happening again.

Risk Mitigation

When new treatment technologies are being developed and introduced, risk studies can identify potential hazards and operability problems. We can help you systematically identify risks and eliminate or reduce them. Our risk experts can help both organise and perform risk identification studies, as well as provide follow up recommendations and mitigations.



Applied Technology Group Halifax

Global Technology Centre Southampton

Global Technology Centre Singapore

LR class 7,698 vessels of all types and sizes.

We're in 78 countries ...

... with over 8,000 employees globally ...

... and over 1,600 surveyors.

(Existing Fleet and Orderbook as at end December 2015)



What services do you need?

To help you identify the support you need, we have aligned our services with your challenges in meeting the requirements of the Ballast Water Management Convention.

- Shipowners and Operators**
- Designers and Builders**
- Equipment Manufacturers**
- Port Owners**
- Flag Administrations**

	Training and Insights	Strategies for Compliance	Certification and Type Approval	Design and Integration	Operational Support
Guides and Seminars	✓	✓	✓		
Training Courses	✓				
Change Management	✓				
Crew Awareness	✓				
Competence Management	✓				
Regulatory Advice		✓			
Compliance Strategy		✓			
Technology Selection		✓			
Port Feasibility Studies					
USCG Extension Letters		✓			
Plan Preparation			✓		
Statutory Plan Approval			✓		
Statutory Type Approval					
Class Approval			✓		
USCG IL Testing			✓		
IBWMC*					
Installation Approval				✓	
System Integration				✓	
Reduced-Ballast Design				✓	
Design Assurance					
Operational Assurance				✓	
Project Management				✓	
Design Optimisation				✓	
Human Factors in Design				✓	
Maintenance Planning					✓
Criticality Analysis					✓
Failure Investigation					✓
Risk Mitigation					✓

*International Ballast Water Management Certificate

Shipowners and Operators

We are here to help you gain and maintain compliance in the best way for your business, reducing your commercial, safety and technical risks.



The issues you face

We understand that staying in business depends on being compliant – whether you are building new ships or operating an existing fleet.

If you do not comply with international and national ballast water management requirements, you simply cannot operate.

Of course, your compliance challenges will depend on your geographical and operational profile, but ultimately everyone who owns or operates ships, including submersibles, floating craft, floating platforms, FSUs and FPSOs, will need to select, implement, operate and maintain a ballast water compliance method. Knowing how and when to do this – in the right way for your business – is key.

The solutions you need

We are here to help you with your compliance challenges, at every step of the way.

Not only can we help make sure you gain compliance on time, but we can help you stay compliant – in the most efficient and effective way for your operations. By working with you to develop and adopt a compliance strategy, we help you make the right decisions and reduce commercial, safety and technical risks.

Our training and human factors specialists can also help you successfully manage the organisational and cultural changes that come with integrating new technologies and systems.

And we can provide approval of the Ballast Water Management and Ship-Specific Installation Plans that the BWM Convention requires.

Over **68,000** vessels impacted by the BWM Convention

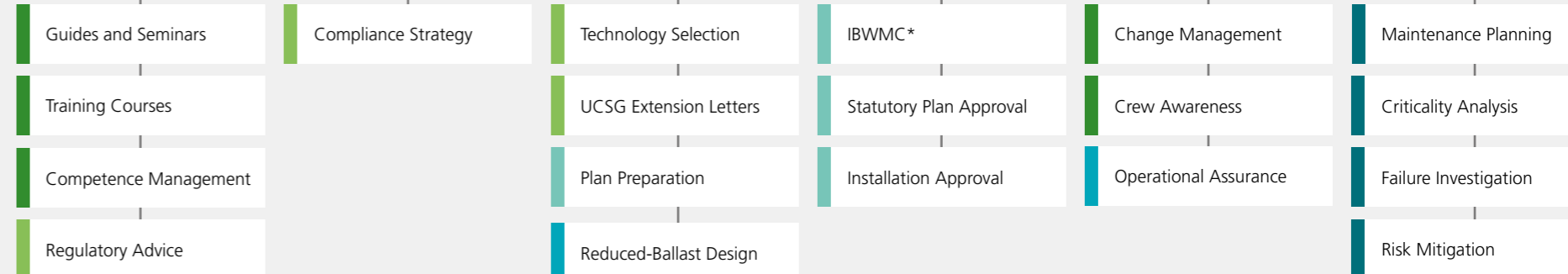
 **USCG**
United States Coast Guard national requirements are already in force

Impacts **99.9%** of all new build tonnage on order

Your challenges



Our solutions



- Training and Insights
- Strategies for Compliance
- Certification and Type Approval
- Design and Integration
- Operational Support

*International Ballast Water Management Certificate

Designers and Builders

We provide the support you need to successfully integrate treatment systems – however innovative – into both newbuild and in-service ships.



The issues you face

Integrating a ballast water treatment system into a ship design – whether a new build or a retrofit – needs to be carried out without compromising vessel safety, performance or operation. Being able to offer the right solutions for your clients is vital.

From choosing the best location for systems on new builds to finding the required space and power on existing ships, there are numerous challenges to overcome to ensure ships comply. And people are a crucial consideration from the very start: will the crew be able to operate and maintain the system easily?

“Our ergonomics and human factor specialists help you make sure that systems are designed with the crew in mind.”

The solutions you need

Our combined knowledge of ship operations, naval architecture, marine engineering and BWM Convention means we can provide the specialist support you need in order to successfully integrate treatment systems on board ships.

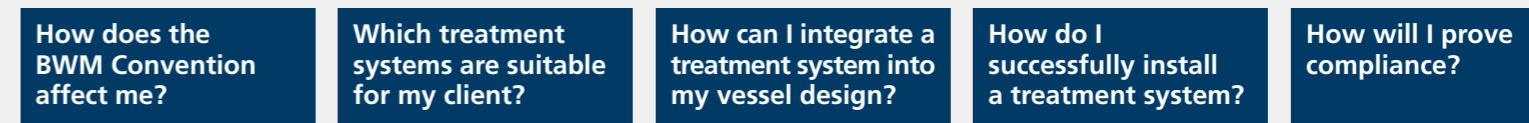
We help you consider and address all aspects – from space and power to piping, safety, loading and stability.

Plus our ergonomics and human factor specialists help you make sure that systems are designed with the crew in mind. By considering this ‘human element’ throughout the concept, design and build process, we can help you reduce time and cost by ensuring you get it right first time for your clients.

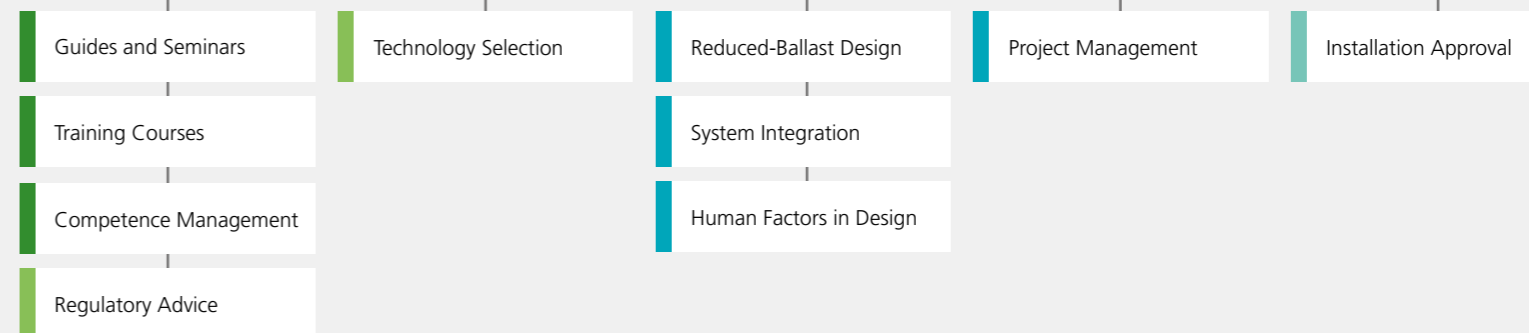
While treatment systems are the obvious solution to compliance, the regulations also present opportunities to go beyond conventional treatment approaches. We can help you to innovate, working with you to create novel designs that use alternative compliance methods – such as reduced ballast and ballast-free designs.

“We can help you to innovate, working with you to create novel designs.”

Your challenges



Our solutions



- Training and Insights
- Strategies for Compliance
- Certification and Type Approval
- Design and Integration
- Operational Support

Equipment Manufacturers

We help you get the most from your ideas, ensuring your products are compliant and robust.



The issues you face

Anyone investing in a ballast water treatment solution needs to know that it will be compliant, and that it will do exactly what it claims.

To be their supplier of choice, you need a product that is proven and that differentiates you from your competitors. At the same time, your product needs statutory and class Type Approval, as well as USCG Type Approval for systems operating in US waters.

The solutions you need

We can provide you with the assurance and peace of mind that your customers are looking for.

Through our approval and design support services, we help ensure that your system is compliant and robust – from the design stage to manufacture and throughout operational life.

If you are at the concept development stage, we can help you assess and optimise your design against all of the national and international ballast water management requirements, as well as provide further design optimisation to help you get the most out of your ideas.

When challenges arise in service, we are always on hand to identify the cause, help you find a solution and to prevent problems occurring again.

Our expertise in treatment system technologies is deep and broad – we can even help you translate a land-based technology to a ship-board environment, or vice-versa.

Experience in all technology systems

Lloyd's Register has worked with and approved systems covering the complete range of available ballast water treatment technologies

- ✓ Filtration
- ✓ Chemical disinfection
- ✓ Ozonation
- ✓ Electro-chlorination
- ✓ Ultraviolet (UV) irradiation
- ✓ De-oxygenation
- ✓ Pressure/vacuum (PV)

Your challenges

How does the BWM Convention affect me?

How do I make my product more competitive?

How will I prove compliance?

How do I ensure through life operation?

Our solutions

Guides and Seminars

Training Courses

Regulatory Advice

Design Optimisation

System Integration

Design Assurance

Human Factors in Design

Statutory Type Approval

Class Approval

USCG Independent Laboratory Testing

Change Management

Crew Awareness

Operational Assurance

Project Management

Maintenance Planning

Criticality Analysis

Failure Investigation

Risk Mitigation

- Training and Insights
- Strategies for Compliance
- Certification and Type Approval
- Design and Integration
- Operational Support



Port Owners

For those ports that are suitable, developing a ballast water capability could open up a significant new revenue stream. We can help you assess your port's feasibility.



The opportunities you face

Could the BWM Convention be an opportunity for your port to differentiate itself and increase revenue?

Providing the right reception facilities could help you win more business. If you are a fixed route ferry terminal, for example, ferries may find it more cost-effective to use your reception facilities than to install a ballast water management solution on board, where space and power are at a premium.

We understand that not every port will be able to gain competitive advantage in this way, but for those that can, how will you identify and make the most of the opportunities?

The solutions you need

We have expert knowledge of all types of treatment systems and their application, helping us to give you the broadest advice possible.

Through our design services, we can even help with the transition and assurance of systems from one industry to another; or to new applications, such as taking ship-board technologies and applying them on shore.

At the same time, our experience in commercial case studies and business case preparation means that we can give you a clear idea of payback time and support you in seeking investment.

“ We have expert knowledge of all types of treatment systems and their application. ”

“ We can give you a clear idea of payback time and support you in seeking investment. ”

Your challenges

How does the BWM Convention affect me?

How can I evaluate my port's feasibility?

Our solutions

Guides and Seminars

Training Courses

Competence Management

Regulatory Advice

Port Feasibility Studies

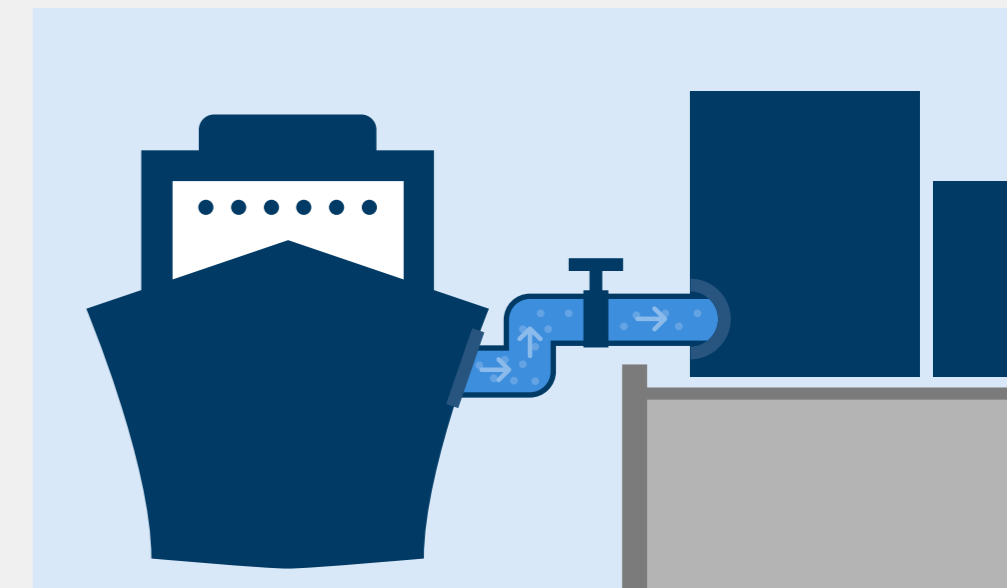
Technology Selection

Design Assurance

System Integration

Risk Mitigation

- Training and Insights
- Strategies for Compliance
- Certification and Type Approval
- Design and Integration
- Operational Support



“ Providing the right reception facilities could help you win more business. ”

Flag Administrations

With over 99% of vessels to certify, we can help you meet the needs of your shipowner clients. Our integrity and experience mean you can trust us to represent you.



The issues you face

We understand that, as a member of the IMO, you need to certify the ballast water compliance of all vessels registered to your flag.

Especially for smaller flag Administrations, we know that this is a huge undertaking, with more than 68,000 vessels over the 400gt limit for surveys and certification.

With treatment systems and compliance plans to approve, you will require a complete understanding of the regulations, and the service you provide needs to be both global and fast. Getting certification correct is vital and key to keeping you on the white list.

The solutions you need

As a Recognised Organisation for over 120 flag Administrations, we can help make sure you meet the needs of your shipowner clients and reduce the risk of certification errors.

We combine expert knowledge and understanding of the regulations with a global network of surveyors and technical specialists. This means you can trust us to provide the high-quality certification you need – anywhere in the world. From statutory approval of treatment systems and ballast water management plans, to issuing International Ballast Water Management Certificates, you can rely on us to get everything right.

“ You can trust us to provide the high-quality certification you need – anywhere in the world. ”

Your challenges

- How does the BWM Convention affect me?
- How do I certify compliance for all of my clients?

Our solutions

- Guides and Seminars
- Training Courses
- Statutory Plan Approval
- Statutory Type Approval
- IBWMC*

- Training and Insights
- Strategies for Compliance
- Certification and Type Approval
- Design and Integration
- Operational Support

*International Ballast Water Management Certificate

Over **68,000** vessels will require statutory certification

Over **1,600** surveyors worldwide

Recognised by over **120** flag Administrations

78 countries

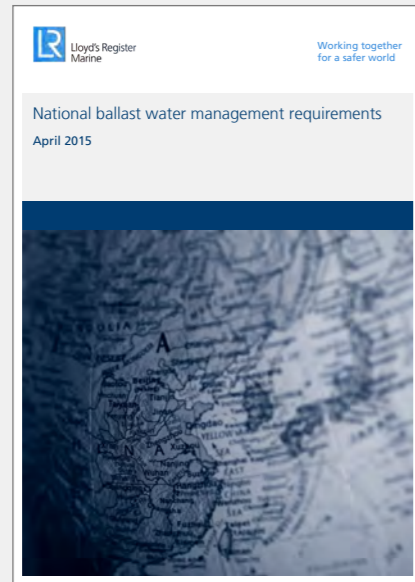
Making the right decisions begins here

We have a range of tools and publications covering every aspect of ballast water management. To find the content you need, visit www.lr.org/bwm



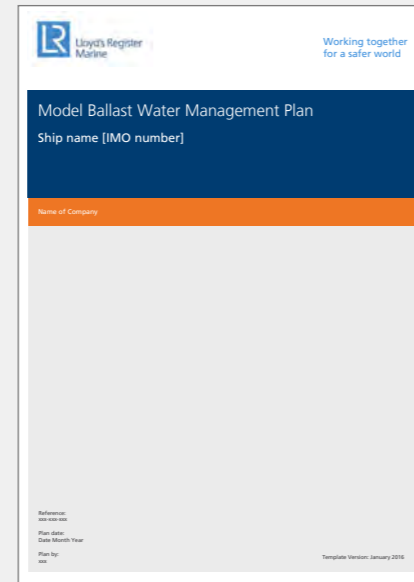
Understanding Ballast Water Management – Guidance for Shipowners and Operators

In-depth guidance on the Convention's requirements and how to comply.



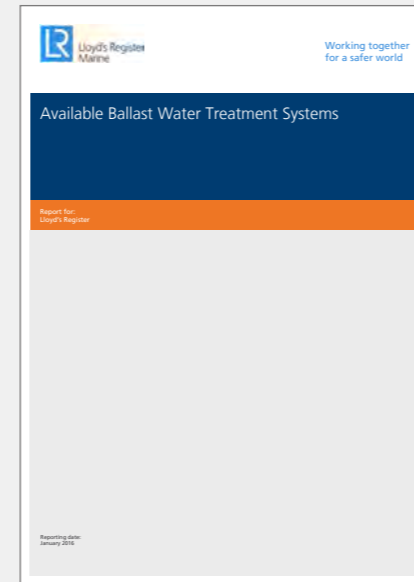
National Ballast Water Management Requirements

All you need to know about national, regional and local ballast water management requirements.



Model Ballast Water Management Plan

A ready-to-use model Ballast Water Management Plan, based on the IMO Guidelines – to help you create your own.



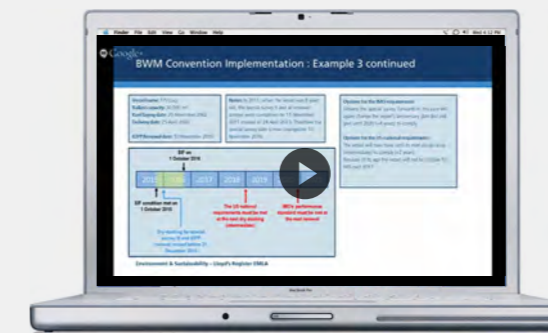
Available Ballast Water Treatment Systems

Detailed information on available ballast water treatment systems, listed by manufacturer.



Ballast Water Management Awareness Training Factsheet

Details of our ballast water management training course and who should attend.



Ballast Water Management Webinar

A pre-recorded webinar that discusses the Convention and provides practical solutions for compliance, based on real-life challenges.

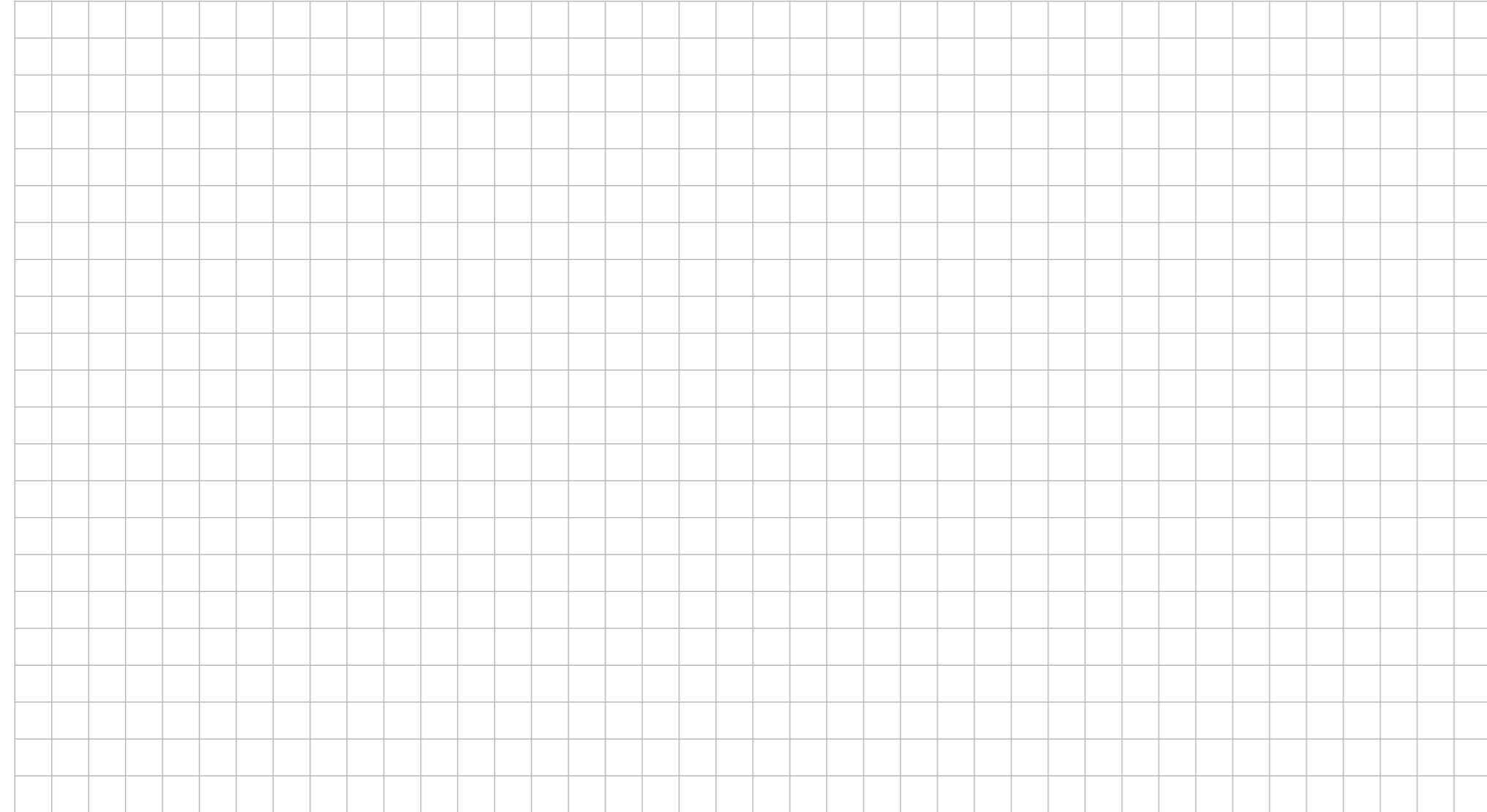
Our experts are waiting to hear from you

Whether you are a shipowner or operator, a designer or builder, an equipment manufacturer, port owner or flag Administration, the sooner you get in touch, the sooner you can talk to our experts about your specific challenges. And the sooner we can help you with the solutions that are right for you.

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