IACS

International Association
of Classification Societies

Annual Review 2019

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Preface

IACS embarks on a data driven approach – an emerging field for class in the next decade

Arun Sharma, IACS Council Chair and Executive Chairman of Indian Register of Shipping reflects on a fulfilling year – formulation of IACS data-driven policy, paving way for furthering of IQARB and maintaining technical leadership of IACS


Arun Sharma

It gives me a great pleasure to bring out 2019 IACS Annual Review. This is the 3rd consecutive year of publishing IACS Annual Review – an overview of several; e.g. advances in wave modelling, decarbonization, consolidated recommendation on cyber security, etc and development of new activities undertaken by IACS during the year highlighting its contribution on a diverse range of subjects that the Association has handled, keeping in mind industry concerns.

Looking back to 1st of July 2019, when I took over as Chairman of IACS, my focus areas were; formulation of data driven policy, strengthening IACS internal systems to maintain and enhance quality operations, enhancing interactions with stakeholders affirming its relevance to the industry. As Chair I am especially proud to see establishment of IACS Data-driven policy, making further in-roads in the field of cyber-security, working jointly with the industry partners and continuing to make progress by holding 2nd IQARB meeting to enable chalk out a road map to take further steps culminating in having a visible and beneficial impact for flags/ industry, to name just a few.

Cyber Safety

The 12 IACS Recommendations on Cyber Safety developed jointly by IACS-Industry working group represent a significant milestone in addressing safety concerns relating to cyber issues. Further progress has been made by consolidating these 12 recommendations into a single Recommendation and will get subsequently translated into a Unified Requirement (UR) by undertaking a planned experience building phase before converting into a Unified Requirement (UR). Thus, IACS will be fulfilling its commitment provided to the industry with the appropriate tools to manage such concerns as part of its wider mission to deliver safer and cleaner shipping.

IQARB

As a part of its ongoing commitment to continual improvement in quality, IACS after receiving favourable response from various stakeholders on the success of 1st trial meeting on IQARB, galvanized itself by arranging a 2nd IQARB meeting, chaired by an industry person, thus consolidating the gains made during 1st IQARB trial meeting.

Recognising the need for IACS to get more involved after being part of the IMO MSC Regulatory scoping Exercise on MASS and the work of ISO/TC8/WG Small Shipping Working Group, IACS decided to establish an expert Group on MASS (EG/MASS). This will further enhance IACS' goal to strengthen its leadership and technical knowledge and demonstrate competencies through MASS related work.

During the preceding year, IACS issued several High-level Position Papers on industry topics such as Sulphur 2020, GHG emissions, EU MRV and IMO DCS, Cyber systems, Ballast

Water Management, Digitalization and connectivity (e-certification) and Autonomous ships, These papers provided technical guidance to help industry partners to better cope up with numerous challenges. These papers are reviewed periodically and updated as required. IACS will be developing high-level position papers on Underwater noise measurement and Data.

The Chair believes that IACS is not alone in the shipping industry, but is backed by multilateral and diverse stakeholders, flags and above all IMO in providing total support and cooperation to fulfill the shared goal of safe and pollution free shipping. To that end I look forward to maintaining a strong relationship with all the maritime stakeholders in ensuring accident free and environmentally friendly shipping.

Amidst continued efforts towards containment and mitigation of COVID -19, this I believe is the most opportune time for all of us to significantly enhance our digital operations re-emphasizing my earlier thoughts at the time of taking IACS Chair

In conclusion, I would like to thank all IACS Council and other members for their unwavering support, and in particular IACS Secretariat for their committed and unrelenting efforts in providing professional assistance to ensure that Association delivers a service of standard unmatched.

Keeping pace with change

Supporting the global maritime industry with the challenges of today and those of the future.
By Robert Ashdown, Secretary General.


Robert Ashdown

The pace of change affecting the global maritime industry saw no let-up in 2019. Difficult market conditions persisted for many sectors while the industry also had to prepare for perhaps the most significant regulatory change ever introduced by the International Maritime Organization, the move to low sulphur fuel. At the same time, intense activity was being undertaken across the industry as it positioned itself to meet head on the urgent challenge of decarbonisation while the introduction of new technologies and the digitalisation of existing processes added further levels of complexity and uncertainty.

Many of these trends had previously been identified by IACS Members and 2019 saw the introduction of a number of initiatives designed to ensure that IACS, as an Association, remained a relevant and reliable partner to the industry and its regulators.

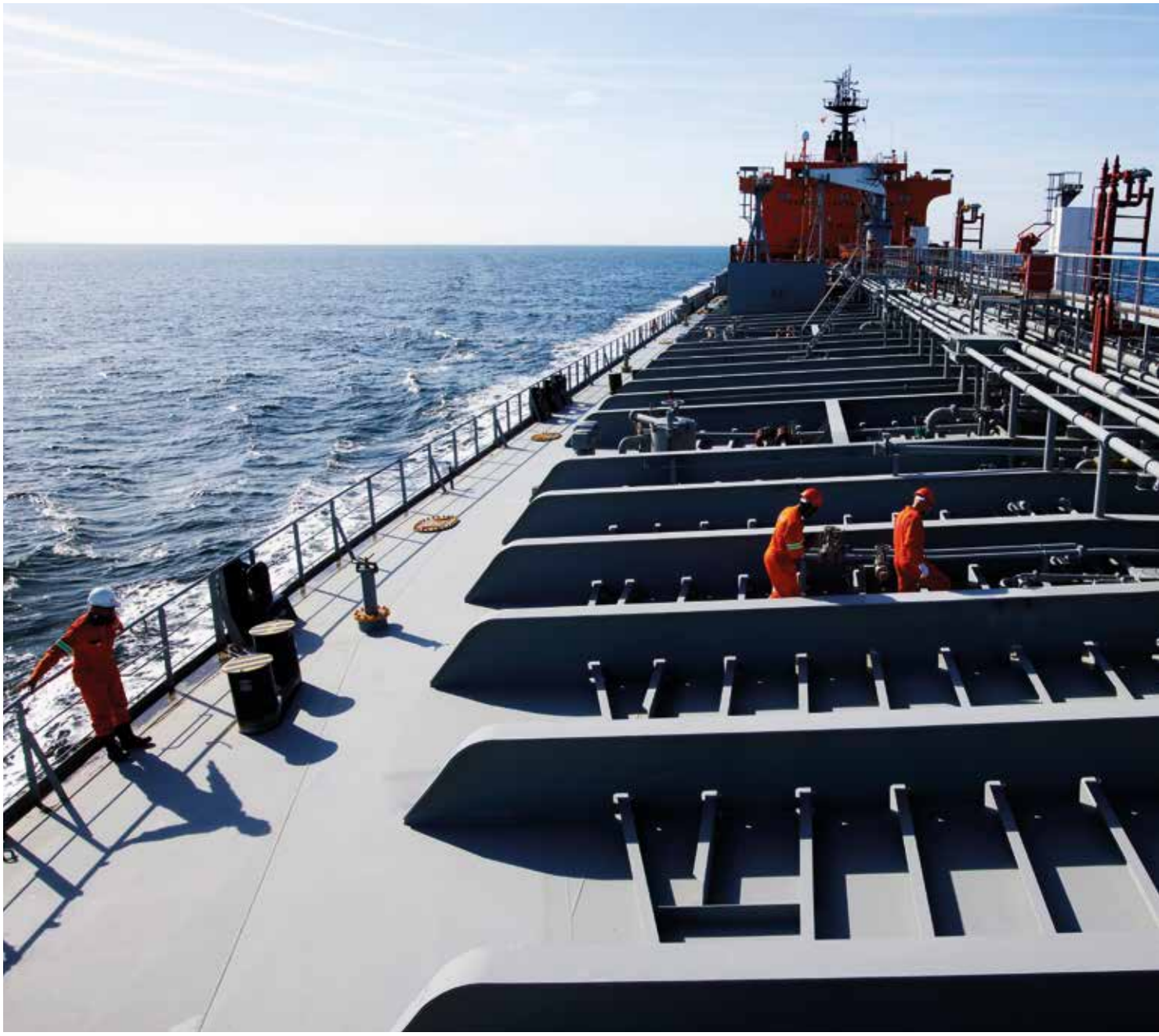
In terms of new regulatory challenges, IACS continued to provide strong support at and through IMO (see pages 42-43), submitting papers on decarbonisation to help assist the implementation of the IMO's initial greenhouse gas reduction strategy and on the safety aspects related to the wholesale switch to low-sulphur fuel. In the case of the former, IACS' primary focuses were the implementation aspects and the need for solid data collection to underpin the three-step legislative approach of 'collect, analyse, develop'. On desulphurisation, meanwhile, IACS' concerns around potential safety implications contributed to the development of an IMO action plan on flashpoints for low sulphur fuels.

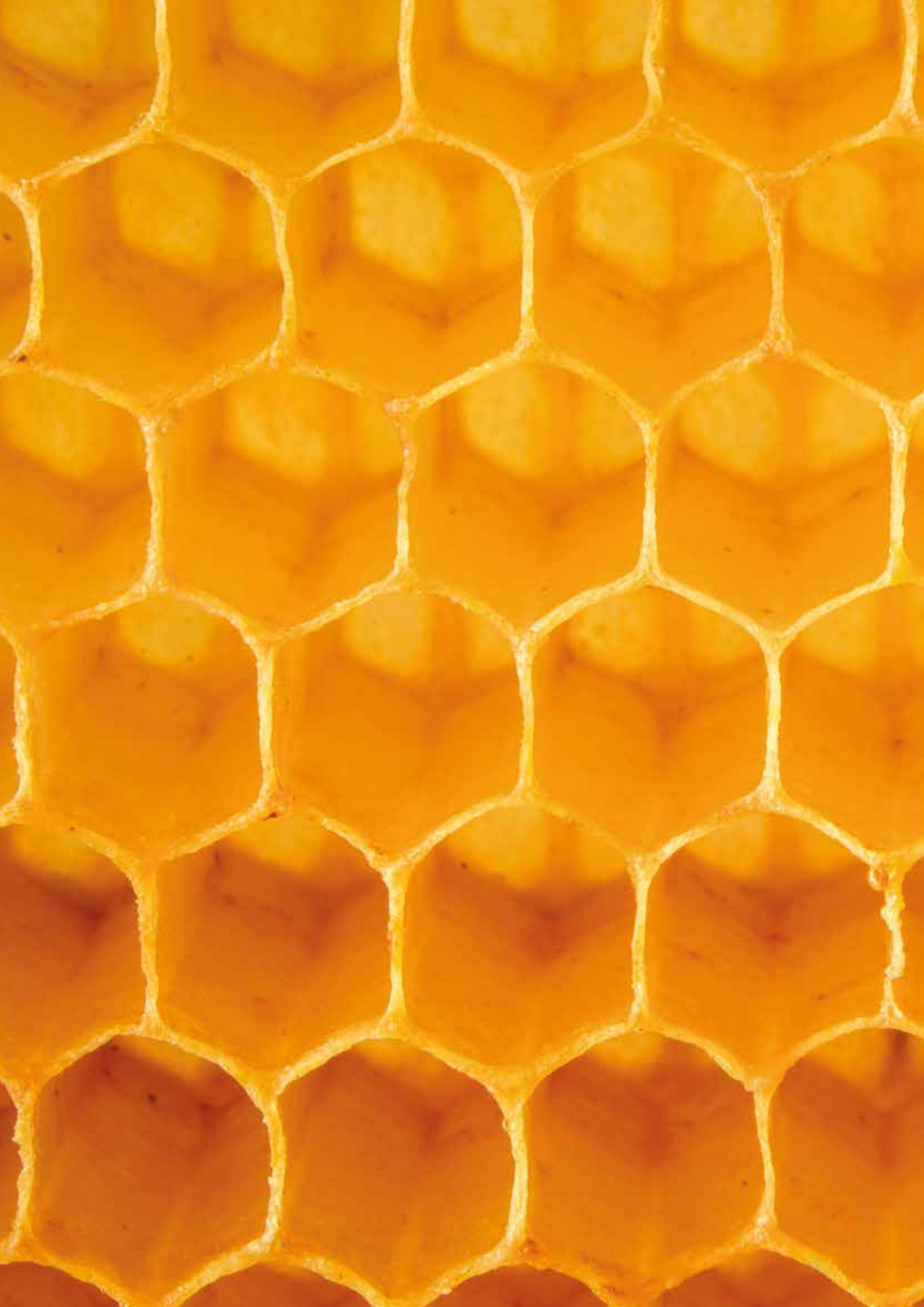
Recognising that future regulatory development will increasingly be driven by analysis derived from the massive increase in the amount of available data, IACS decided to establish a Data Driven Policy to better inform the development of its own Resolutions, but also to contribute to the work of the regulatory bodies. Similarly, and with an awareness of the challenges posed by the adoption of increasingly complex, reconfigurable and highly automated integrated systems, IACS also established a complex systems working group to address how classification requirements and processes can continue to assure the safety of systems with integrated arrangements of complex or unfamiliar components. Big data, complex systems, digitalisation and the requisite cyber safety needed to underpin each of these will also, together with the evolving nature of the industry, necessitate significant debate on how these developments can be properly reflected in the maritime regulatory regime; a discussion to which IACS is ideally qualified to contribute.

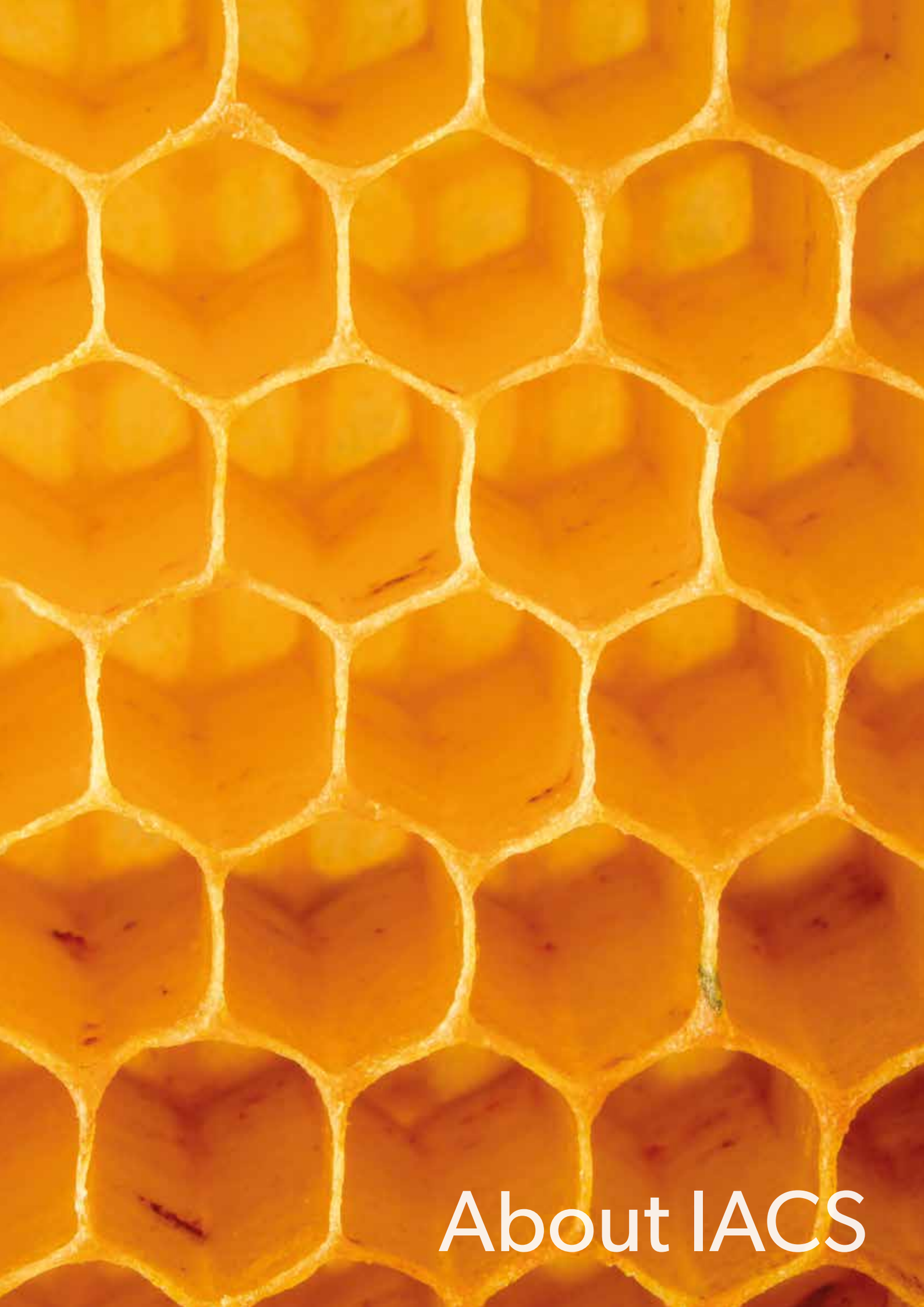
2019 also saw IACS continue to work closely with its industry partners across a range of technical issues (see pages 44-48). Joint Industry Working Groups were established on Container Ship Fires and Anchoring Equipment, while that on Cyber Safety maintained its intensive meeting schedule as IACS looks to consolidate its 12 Cyber Recommendations into a single, stand-alone Recommendation for publication in 2020. Other activity saw the establishment of a correspondence group with IUMI on Engine Room Fires Due to Leakage from Low Pressure Fuel Pipes as well as IACS' traditional leadership and support for the annual Tripartite meeting between shipowners, shipbuilders and classification societies. It was through Tripartite in 2019 that IACS committed to work with industry on effective and implementable short-term GHG reduction measures as well as a review of the IMO recommendatory guidelines on underwater noise from ships.

Alongside these activities, IACS also made a further step-change in 2019 with regards to the oversight of its Members' quality operations through the inaugural meeting of the International Quality Assessment Review Body *(IQARB, see page 34)*, an advisory body established to review, on a trial basis, the certification process of the quality management systems of IACS Classification Societies (QSCS) in meeting the requirements of the RO Code. By so doing, it is considered that the IQARB could assist IMO Member States in fulfilling some of their obligations with regard to the oversight programme exercised by flag State Administrations over their Recognized Organizations (ROs). This successful first meeting established a clear plan of action for the future development of the IQARB and IACS will continue to support the initiative as it continues to evolve.

The above clearly demonstrates the commitment of IACS Members to supporting the global maritime industry both with the challenges of today, as well as those of the future; to providing practical, technical leadership and support; and to working with the IMO and other regulatory bodies to ensure that the significant changes imposed by decarbonisation, digitalisation and new technologies are facilitated by a dynamic and responsive regulatory regime that is implemented consistently and globally, and which continues to deliver our shared objective of safer, cleaner shipping.







About IACS

Putting safety front and centre

IACS Members' shared expertise gives them unrivalled technical knowledge of ships and floating structures. By Robert Ashdown, Secretary General.

IACS Members strive to protect lives and the natural environment through their assurance that ships and other floating structures are maintained in a condition which can be operated safely, securely and in an environmentally responsible manner. Utilising unrivalled expertise and technical understanding of ships' structures and the stresses they are subject to, IACS Member classification societies work in partnership to set and maintain high standards for commercial shipping through the development of unified technical requirements and the production of other recommendations and guidance.

Ship classification is defined as the verification of the structural strength and integrity of the essential parts of a ship's hull and its appendages, as well as the authentication of the reliability and function of its propulsion and steering systems, and power generation, alongside other features and auxiliary systems built into the ship to maintain essential on-board services for safe operation. Robust classification of ships is founded on the development and application of independent classification society Rules coupled with the verification of compliance with international and/or national statutory regulations on behalf of flag State Administrations. The classification Rules of each IACS Member have been honed over many years through extensive research and development as well as service experience, allowing for constant refinement of those Rules. IACS Unified Requirements, once agreed by IACS Members, are also transposed into individual Members' Rules.

Classification societies sit in a unique position when it comes to collating research and data because they are involved with ships through their entire life cycle. As such, they have first-hand data and experience of the design approval process, from new construction (including the certification of materials, equipment and components) and the surveys of ships in-service. This data and practical experience are used to drive research and development which, in turn, leads to the improvement of classification Rules. This 'class cycle' involvement is a key supporting element of the purposes and objectives of IACS *(see Figure 1)*.

Figure 1
The class cycle

The vast majority of commercial ships are built to and surveyed for compliance with IACS Members' Rules. Classification's link with statutory certification is also critical, since classification by a society recognised by a flag State Administration is often a prerequisite for both registration of a ship with its flag State Administration and for certification of its compliance with the International Convention on Load Lines and the International Convention for the Safety of Life at Sea.

To ensure continued safe shipping operations, classification societies and their surveyors have an unparalleled understanding of internationally applicable statutory requirements for ships and other floating structures. That expertise squarely positions IACS as the International Maritime Organization's (IMO) technical advisor, which in turn allows IACS Members first-hand access to development of international regulatory instruments. This symbiotic relationship provides IACS' Member societies with an exceptional channel to share technical information with the industry and facilitates consistent implementation of the international mandatory conventions and codes as part of the statutory services societies provide on behalf of flag State Administrations, when authorised.

The Scope of Class Certification

It is important to understand that a classification certificate is not a warrant of a ship's safety, fitness-for-purpose or seaworthiness. A classification certificate is a confirmation that the vessel – at a certain date – complied with the Rules developed and published by the society issuing the certificate.

Classification societies are also not guarantors of the safety of life or property at sea, or the seaworthiness of a vessel. This is because classification of a vessel is based on the understanding that it is loaded, operated and maintained in a proper manner by competent and qualified personnel, and a classification society has no control over how a vessel is operated and maintained between the periodical surveys it conducts to check that a vessel remains in compliance with the relevant requirements. Proper maintenance and operation by shipowners or operators, as well as the seafarers on board, is vital to the safe operations of ships and other floating structures.

It is, therefore, the shipowner or operator's responsibility to inform its classification society without delay if any defects are found that may affect class, or if any damages are sustained. If the conditions for maintenance of class cannot

be complied with, class may be suspended, withdrawn or revised to a different notation as deemed appropriate by the society when it becomes aware of the conditions.

Key values in mind

The IMO and the International Labour Organization hold the ultimate responsibility for setting statutory requirements for shipping to address the safety and security of ships and those on board, as well as for protection of the environment. They also ensure a level regulatory playing field, allowing a compliant ship flying the flag of one State to trade internationally and in doing so, facilitating the efficiency of global trade. IACS supports this statutory role through its development and adoption of Unified Interpretations (UIs) as necessary to assist in the global and consistent implementation of IMO regulations. IACS UIs are adopted Resolutions on matters arising from implementing IMO agreed provisions. These UIs encourage global and consistent implementation and can address matters which in the IMO agreed texts are either left to the discretion of the flag State Administration or are vaguely worded.

IACS also establishes, reviews, promotes and develops Unified Requirements (URs) in relation to the design, construction, maintenance and survey of ships on matters directly connected to or covered by specific Rule requirements and practices of classification societies. These are considered minimum prerequisites, but Members are free to set and publicise requirements that result in an equivalent or higher safety level compared with IACS' URs.

IACS employs its technical expertise to assist international regulatory bodies and standards organisations to develop, implement and interpret statutory regulations and industry standards in ship design, construction and maintenance with a view to improving safety at sea and preventing marine pollution. At a regional level, IACS makes technical contributions to European Union regulatory developments related to shipping.

Where required, IACS also engages with individual flag State Administrations and regulatory bodies, ensuring IACS Members' confidence when they are certifying compliance with statutory regulations on behalf of authorising flag State Administrations.

"IACS Members strive to protect lives and the natural environment through their assurance that ships and other floating structures are maintained in a condition which can be operated safely, securely and in an environmentally responsible manner."

The breadth and depth of IACS' work in relation to safety and the protection of the marine environment cannot be overstated

IACS VALUES

IACS ascribes to the following values in its assistance to regulators, including the IMO and ILO, and industry:

1. **Leadership:** the ability to be ahead and to co-operate with regulators and industry on initiatives that can effectively promote maritime safety, protection of the environment and sustainability.

2. **Technical knowledge:** collective and individual knowledge and experience leading to the development, adoption and implementation of technical rules and requirements reflecting current practice and changing demands of society, supporting innovation and new technologies.

3. **Quality performance:** commitment of Members to define and adhere to the highest global quality standards.

4. **Transparency:** the ability to provide advice on the implementation of regulations, interpretations or enhancements thereof, if the need is identified, so that practical solutions can be effectively developed in co-operation and with the support of other stakeholders, increasing the trust on class.

In light of the above, the breadth and depth of IACS' work in relation to safety and the protection of the marine environment cannot be overstated. Working in partnership and applying the full depth of its expertise, IACS makes a significant contribution to the continued safe operation of the shipping industry.

IACS Technical Work

The crest of accurate wave data

Advances in wave modelling are supporting a revision of IACS' wave data Recommendation. By Philippe Baumans, Chairman of IACS Hull Panel.

> **"Wave data can now be mapped to actual ship positions, and corresponding statistics can be made"**

Accurate wave data representing the ocean environment is of paramount importance to ship structural rules; it underpins wave load prescription, which in turn, greatly impacts hull structural requirements and ultimately the vessels' as-built scantlings.

The wave data currently in use, described in IACS Recommendation 34, is given by a scatter diagram providing a joint probability distribution for the significant wave height (Hs) and the mean up-crossing period (Tz).

This scatter diagram is meant to represent the wave characteristics in the North Atlantic Ocean, which are assumed to be the most severe and used as a design standard. The data for the diagram came from visual observations on board ships, collected in the second half of the 20th century. The raw observations were bias corrected, smoothed and fitted with an analytical model.

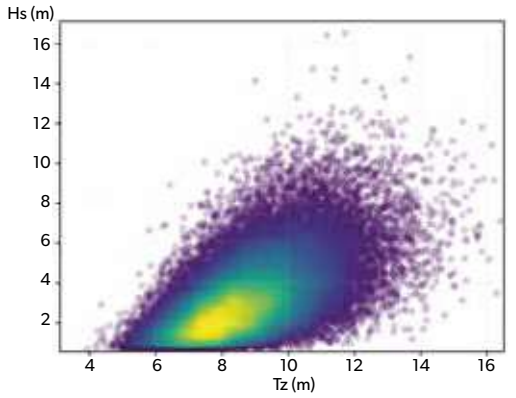
During the Goal Based Standards audit of the Common Structural Rules, the adequate representation of North Atlantic waves by Recommendation 34 was questioned. Indeed, over the two past decades, huge progress has been made regarding wave data and several sources of wave data are now available, including:

- altimetry (measurements from satellite);
- hindcast model (re-analysis of past weather); and
- wave buoys.

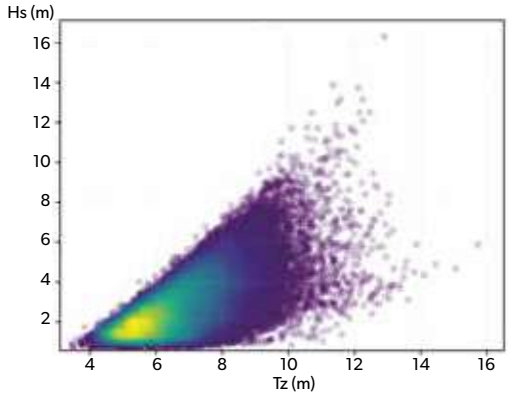
In response to the auditor's comments, IACS set up a project team to investigate if and how Recommendation 34 could be improved using more recent data sources.

Figure 1 shows data from buoy measurement, hindcast model and Recommendation 34, sampled with the same size as the measurements, to allow direct comparison. While samples from IACS Recommendation 34 cannot be compared directly with the newer measurements, some valuable and qualitative information can be drawn from this comparison.

IACS rec34 38750 samples



Buoy 46006



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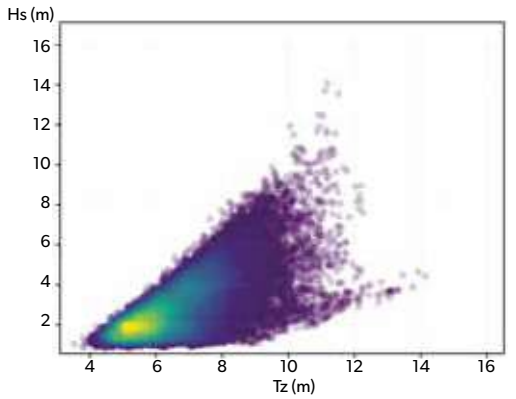


Figure 1 Hs/Tz scatter plot from various sources

In the first approximation, extreme wave height can be seen as similar between all sources. However, the overall shape of the current Recommendation 34 sample is quite singular. In particular, the wave period and its dependence

to wave height do not seem to match the buoy measurements or the wave model.

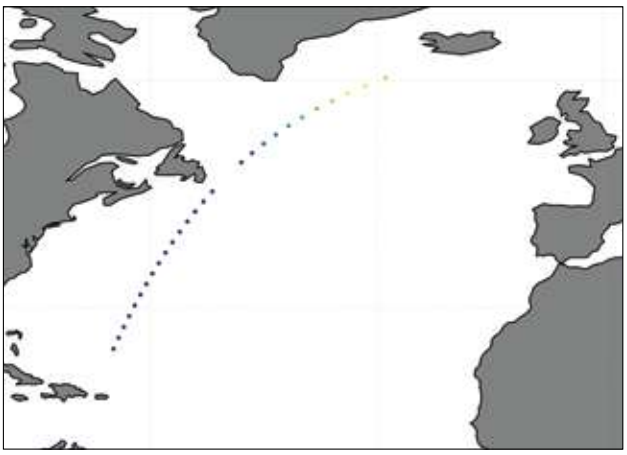
The impact of waves on the ship strongly varies with wave height, but the wave period is also a prime parameter. Schematically, short length ships are sensitive to short waves, and long length ships to long waves. Therefore, an approximation on the wave period which relates to the wave length would result in non-optimum rules, that is to say that the safety level would vary by ship length among the fleet.

Added to this, under Recommendation 34 very steep sea states – never measured in the actual ocean – are quite probable. This raises a practical symptomatic problem: as some sea states are not physically possible, they cannot be modelled with advanced simulation software. Simulation software used mostly by researchers today will be used by a wider range of engineers tomorrow. As such, the case for an update of the North Atlantic scatter diagram is compelling.

Validation of data sources

There are several sources on which a new scatter diagram could be based. Measurements using buoys and satellites are useful, but their coverage is too narrow to be used on their own for shipping; the time spans are too small and/or spatial coverage is not global. Instead, the goal is to use global hindcast datasets, which cover the whole globe for a large time span. Those datasets can be validated thanks to buoys and altimeters.

Figure 2 shows a time trace comparison along an altimeter footprint (TOPEX satellite, on 17/01/2005). It shows that all hindcast datasets can reproduce the storm recorded by the satellite. The results of a more systematic comparison, using the data covering the North Atlantic area from 2000 to 2009 can be seen in Figure 3, which includes a comparison of two hindcast datasets (IOWAGA dataset from IFREMER and ERA-5 from ECMWF) with altimeters. Here, the dataset agreement looks



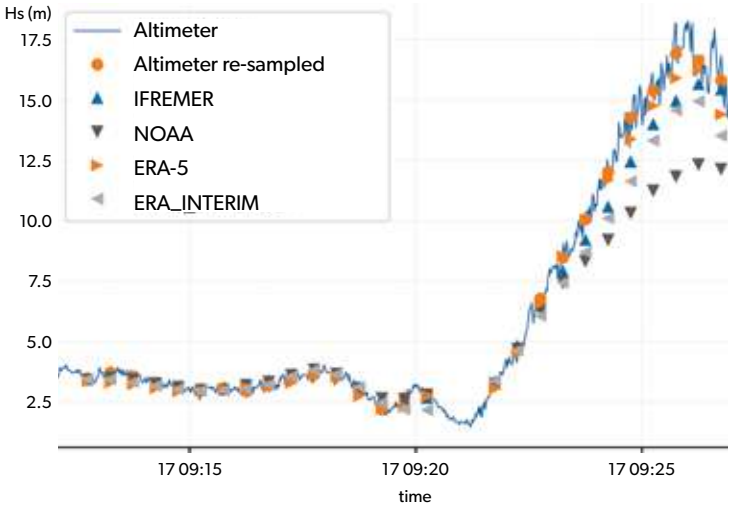


Figure 2 Significant wave height along altimeter track

very good, although there is a slight underestimation of extremes by ERA-5.

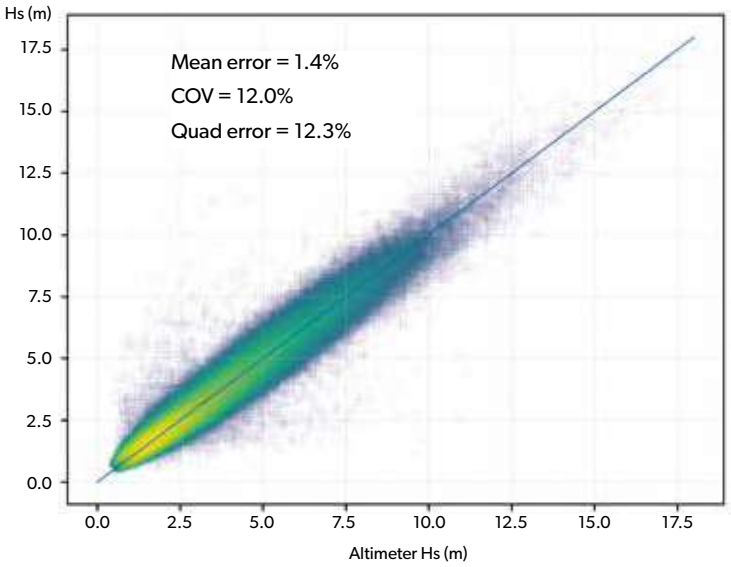
Of course, above all else, what really matters are the waves encountered by ships. It is often argued that waves encountered by ships are less severe than ones measured at fixed positions, thanks to bad weather avoidance.

Verifying this statement was difficult in the past but is now possible thanks to the development and the publication of ship position databases, such as the Voluntary Observing Ship Climate program and AIS. Wave data can now be mapped to actual ship positions, and corresponding statistics can be generated. This analysis shows that ships do indeed avoid the most severe storms, and that bad weather avoidance has a significant impact on the wave statistics of the encounter sea states.

Detailed analysis in this area is on-going.

Overall, the consistency of modern wave data can now be considered very good, supporting IACS' work on an update of Recommendation 34. Work is underway to provide an updated simple scatter diagram, using validated datasets of wave data and ship positions. This updated scatter diagram is expected to result in more accurate Rule loads and improved standardisation of safety levels of the fleet.

IFREMER



ERA5

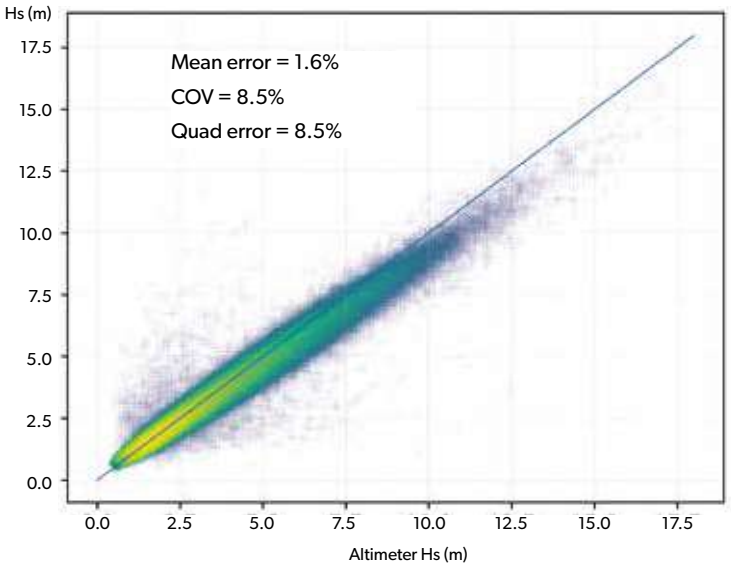


Figure 3 Comparison between altimeter measurement and hindcast model

Joint research on container fires

IACS has partnered with IUMI to investigate how to reduce the number and severity of fires.
By Rhoda Willson, IACS Safety Panel Chair.

Between 2009 and 2019 there were more than 50 fires on container ships. The main causes of these fires have been identified as follows:

- self-heating cargoes (covered by the International Maritime Dangerous Goods Code (IMDG Code));
- lithium-ion batteries overheating;
- cargo reacting with water;
- reefer units with faulty equipment;
- welding;
- sun exposure; or
- collision with other ship.

Recognising a mutual interest in this subject, IACS and the International Union of Marine Insurance (IUMI) have been working together to see what can be done to reduce the number and severity of fires.

IACS is working to address the problem of fires in containers

It is a fact that misdeclaration (when any aspect of the freight, including the weight, commodity, description, quantity and measurements) or non-declaration (when hazardous materials are placed within a cargo transport unit with no markings to indicate the presence of dangerous goods, and when required documents fail to declare the presence of dangerous goods or are missing altogether) of cargoes will continue and there is little that either industry body can do to resolve that particular problem. Instead work is in hand to try and improve the crew's ability to tackle any fires.

SOLAS chapter II-2 addresses fire protection, detection and extinction and includes specific requirements for container ships that came into force for ships built on or after 1 January 2016. SOLAS chapter VII addresses the carriage of dangerous goods in packaged and bulk forms. The requirements for packaged dangerous goods are applicable to cargoes loaded into a container or other cargo transport unit.

Factors which cause fires to be worse than they might otherwise be include:

- delay in detection;
- inaccessibility of containers;
- lack of suitable/adequate fire extinguishing methods; and
- unpredictable spread due to misdeclaration/ non-declaration of dangerous goods.

With respect to crew safety, concerns have also been raised about the proximity of accommodation to containers.

To address these areas a number of different solutions need to be considered for effectiveness and practicality. IACS is currently working with IUMI and flag State Administrations to develop a submission to the IMO proposing that work is done to address the problem of fires in containers.

Currently available fire detection systems include flame detectors, heat detectors, thermography and smoke detectors (line, aspirating and video). There are pros and cons to each of the systems and they need to be assessed on an individual basis for suitability as well as cost effectiveness.

Fire extinguishing system requirements are currently based on certain assumptions which, it is suggested, should be reviewed in light of the increase in the number of containers which are carried (number of tiers and packing density) and the different configuration of container ships, for example accommodation located in the middle of the ship rather than aft and/or the provision of under deck passageways.

A single vision for cyber resilient ships

A new Consolidated Recommendation on Cyber Security defines technical and procedural responsibilities. By George Reilly, Cyber Systems Panel Chairman.

During 2019, the IACS Cyber Systems Panel focused on consolidating the 12 Cyber Security Recommendations developed and created by the Panel the previous year into one consolidated document.

The 12 individual recommendations – each addressing specific technical topics and reflecting good practice – were published on the IACS website between September and November 2018, giving interested parties an opportunity to review the material and reflect on the direction that IACS is taking regarding the subject of cyber systems. Their publication was a milestone, marking the end of one significant phase and the beginning of the next, consolidation phase.

Some aspects of the consolidation process were straightforward, such as standardising language and style. Other aspects, such as outlining and arranging the technical content of the complete 12 Recommendations to create a consistent scope and format across disparate but interrelated topics, were more difficult. The most challenging task was to tackle the first two items in a manner that delivered technical results which met the needs of IACS members while at the same time keenly considering and balancing the needs and views of other maritime industry stakeholders. To raise awareness and to encourage feedback from stakeholders, a significant effort was made to communicate and consult outside of IACS after the initial recommendations were published on the IACS website.

For cyber systems, the main vehicle for liaising with industry is the Joint Working Group/ Cyber Systems (JWG/CS – see also the article on the JWG/CS). Through this JWG the relationship with industry strengthened in 2019 to the point where several very active members of the JWG/CS supported the Project Team working on the consolidation process, operating as a Focus Group to assist with preliminary reviews and drafting text where necessary. Beyond the formal JWG/CS forum, additional communication channels were opened through presentations with question and answer sessions at IMO and EU update meetings, Tokyo and Indian Ocean MoU meetings, Tripartite and other IACS/industry fora. These communication activities garnered a better understanding of the different perspectives of cyber systems within the industry which helped to provide context for the drafting of the single consolidated Recommendation.

Understanding context helps to identify duties

Many aspects of cyber safety, and cyber security in particular, are dependent on the introduction of and adherence to appropriate operational procedures. While operational procedures of this type are not within the remit of classification, those with the responsibility for introducing such procedures need to have an understanding of the equipment and systems that are installed on board ships and these installations must be capable of being maintained and upgraded in accordance with the necessary operational procedures. Technical requirements relating to ships' equipment and systems are clearly within the remit of classification. While equipment design and operation are interdependent and the interface of the two will evolve over time, there is a need to 'start somewhere' when it comes to establishing cyber security guidance.

The International Maritime Organization (IMO) gave some insight into this process with its *Interim Guidelines on Maritime Cyber Risk Management (MSC.1/Circ.1526)* which refer to the incorporation of the Guidelines into existing risk management processes and make subsequent specific references to Safety Management Systems. This provided the necessary direction to ship owners to address procedural aspects. Owners have since collaborated and responded with the development of the industry *Guidelines on Cyber Security Onboard Ships* which consider operational procedures. These industry guidelines are now in their third edition and have helped IACS to understand the extent of what is expected of owners.

MSC.1/Circ.1526 was also influential in its reference to the the five functional elements – Identify, Protect, Detect, Respond and Recover (IPDRR) – of the US National Institute of Standards and Technology *Cybersecurity Framework*. These elements, which are now familiar to most industry stakeholders, also cover technical and procedural requirements. This common reference helps to identify the crossover point between technical and procedural responsibilities over a large range of detailed aspects.

Consolidated document – supporting information

IACS' liaison with organisations beyond IMO, such as the ISO, provides a wider awareness and supports a more holistic approach to the development of the Consolidated Recommendation on Cyber Security. Recognition of the work and needs of others is therefore reflected in additional information provided with the Consolidated Recommendation, specifically:

- the section on 'Assumptions on operational aspects and management' which contains IACS expectations of the operational procedures in place broken down into IPDRR;
- a detailed list of standards (reflecting good practice);
- the mapping of sub-goals to technical and verification requirements (to follow through the goal based standard approach to technical requirements and verification testing); and
- a list of documents to be developed, identifying developer and intended user and classification review and requirements as appropriate.

The final significant influence on the consolidation of the Recommendations has been the specific use of a goal-based approach. The goal of the Consolidated Recommendation is 'to support the design and construction of cyber resilient ships whose resilience can be maintained throughout their lifecycles'. This approach provides a further crosscheck on the contents of the Consolidated Recommendation by requiring a structured or logical link between a requirement and the overall objective.

The Consolidated Recommendation was developed with the intention of it being relevant to all new ships constructed after the date of its publication, but industry stakeholders have indicated their expectation that it will be used as the basis for assessing existing vessels as well. The Consolidated Recommendation will be available on IACS' website for stakeholders wishing to make use of the document in preparation for the 1 January 2021 deadline from flag State Administrations requiring that cyber risks are appropriately addressed in existing safety management systems before the first annual verification of the company's Document of Compliance.

Ensuring ballast water compliance

IACS supports appropriate and timely commissioning testing of ballast water management systems. By Bongchan KO, IACS Environmental Panel Chair.

The International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004 (BWM Convention), entered into force in September 2017 and has been ratified by 81 countries, representing 80.76% of world merchant shipping tonnage (as of November 2019). Amendments to the treaty, relating to implementation timelines to make mandatory the new phase-in schedule for ships to meet the ballast water management standard D-2, entered into force on 13 October 2019. The main focus for the Convention now is on its effective and uniform implementation, and on an experience-building phase, with emphasis on gathering data on its application.

At 2019 meetings of the International Maritime Organization's (IMO) Marine Environment Protection Committee (MEPC), IACS addressed the regulatory challenges associated with ballast water management system (BWMS) commissioning tests which are not required by any mandatory instruments but are recommended to be implemented as soon as possible for new BWMS installations on both new and existing ships.

To ensure effective and uniform implementation of BWMS commissioning tests, IACS proposed the regulatory words for an amendment to the appropriate mandatory instrument, such as to the BWM Convention or BWMS Code, to require commissioning testing, and for interim measures to address the matter before the entry into force of any such amendment under a new output on 'Urgent measures emanating from issues identified during the experience-building phase of the BWM Convention'.

MEPC 74 approved the amendments to the BWM Convention concerning commissioning testing of ballast water management systems with a view to adoption at MEPC 75. The amendment includes a requirement for an initial and additional survey to verify that "a commissioning test has been conducted to validate the installation of any ballast water management system to demonstrate that its mechanical, physical, chemical and biological processes are working properly, taking into account the guidelines developed by the Organization." This meeting also endorsed the view that commissioning testing should begin as soon as possible, in accordance with the already approved *Guidance for the commissioning testing of ballast water management systems (BWM.2/Circ.70)*.

As an interim measure, the IMO urged flag State Administrations to provide the Recognized Organizations which acted on their behalf with written and clear instructions in relation to the conduct of indicative analysis testing of BWMS at the time of their commissioning on board ships flying their flag, including what actions are to be taken in the event of this testing demonstrating non-compliance.

In line with IACS' commitment to consistent and robust implementation and practical application of the BWM Convention, IACS is considering development of guidance on reporting the results of biological efficacy testing at commissioning of BWMS.

This guidance will contribute to a unified and simplified way of reporting and verification in order to effectively issue the Full Term International Ballast Water Management Certificate (IBWMC) to a vessel that has successfully been subject to commissioning of their newly installed BWMS.

In recognising its role as the IMO's principal technical advisor, IACS, within the IMO framework, will continue to actively consider its contribution to the safe, efficient and effective implementation of the BWM Convention during the experience-building phase that was established to develop improvements to the Convention.

“IACS is considering development of guidance on reporting the results of biological efficacy testing at commissioning of BWMS”

IACS continues to contribute to the safe, efficient and effective implementation of the BWM Convention

The path to decarbonised shipping and cleaner air

Supporting the IMO's vision to reduce greenhouse gas emissions from international shipping.
By Bongchan KO, IACS Environmental Panel Chair.

Under the International Maritime Organization's (IMO) MARPOL pollution prevention treaty, Member States have adopted a number of mandatory measures to reduce emissions of greenhouse gases from international shipping, including the Energy Efficiency Design Index (EEDI) and the Ship Energy Efficiency Management Plan (SEEMP).

In 2018, the IMO adopted an Initial Strategy for the reduction of greenhouse gas (GHG) emissions from ships with a vision of decarbonising shipping as soon as possible and reducing total annual GHG emissions from international shipping by at least 50% in 2050, compared with 2008 levels. The Initial Strategy lists a number of candidate measures which could be considered to further reduce emissions and to help achieve the targets in the Strategy, in particular a 40% reduction of carbon intensity from shipping by 2030.

Late last year, at the sixth meeting of the Intersessional Working Group on Reduction of GHG Emissions from Ships, discussions focused on concrete proposals to improve the operational energy efficiency of existing ships, with a view to developing draft amendments to chapter 4 of MARPOL Annex VI and the associated guidelines.

The proposals on short-term measures are to be finalised and agreed by IMO's Marine Environment Protection Committee (MEPC) between 2018 and 2023. These are divided into two goal based approaches: a technical approach including an Energy Efficiency Existing Ship Index, which could require ships to meet set energy efficiency requirements after the measure takes effect; and an operational approach including a focus on strengthening ship operational energy efficiency, as required in SEEMP.

Implementation considerations

At recent meetings of the Intersessional Working Group, IACS highlighted the need to address the implementation aspects of a candidate measure. It noted that without early consideration of how to implement the candidate measure, there is a risk that the measure may not achieve its full GHG abatement potential. IACS will use its knowledge and expertise to strive for practical implementation of any proposed measures to support technically feasible and consistent global application of all regulations.

IACS urged proponents of candidate measures to consider implementation as early as possible, ideally at the same time as considering the impacts on Member States as required by the Initial Strategy.

IACS supports goal-based regulations with clear objectives and transparent requirements, that can be followed-up and uniformly implemented as ship specific, technical and operational requirements. Meanwhile, the IMO has already

established and implemented a Data Collection System as a key tool for collecting per-ship GHG emission data to underpin further regulatory efforts and as a basis for future revision of the GHG strategy. MEPC 73 agreed, in principle, that a method for conducting future data analysis of the IMO Ship Fuel Oil Consumption Database needs to be developed as a priority. At MEPC 74, IACS and OCIMF submitted a document (deferred to MEPC 75) providing information on possible analysis of data from the IMO Ship Fuel Oil Consumption Database including the identification of performance indicators and possible further analyses that could be undertaken.

IACS will continue to support the proper and timely implementation of the three step approach of data collection, analysis and development of measure, for example in consideration of EEDI, in terms of tightening the provisions for Phase 3 and/or introduction of further phases.

Sulphur 2020

Since 1 January 2020,the global upper limit on the sulphur content of ship's fuel oil has entered into force. The next important target set by IMO is that carrying non-compliant fuel oil on board ships becomes prohibited from 1 March 2020.

At present, most residual fuel oils supplied to ships are blended products and incidents related to fuel oil quality problems occur only occasionally. However, when they do happen, incidents related to fuel oil quality problems can be severe. Considering that more blended products are expected to enter the fuel market in the near future, it is important to increase awareness among all involved parties of the identified potential risks and relevant mitigation measures, including alerting the fuel oil supply network to the consequences of a failure to supply a product that is not to specification.

Some of the problems related to the quality of fuel oil may be addressed by operational measures involving fuel storage, fuel transfer systems, fuel cleaning, combustion equipment, fuel changeover, documentation and training. However, operational measures may not address all problems that are related to the chemistry of the fuel.

Appropriate operational measures can be identified by undertaking the 'Risk assessment and mitigation plan on the impact of new fuels' recommended by MEPC.1/Circ.878 as part of the ship implementation plan for the consistent implementation of 0.50% sulphur limit under MARPOL Annex VI. However, IACS is of the view that consideration should be given to more concrete action such as mandatory application of operational precautions intended to identify and, when possible, to mitigate fuel-related risks.

In support of this, at the 101st session of the Maritime Safety Committee (MSC 101), IACS proposed a method of work and items to be taken into account when developing measures to enhance the safety of ships relating to the use of fuel oil, in particular that a structured approach is proposed in order to justify the need to take regulatory action. Following the consideration of the relevant proposal, MSC 101 endorsed an action plan to further consider measures relating to the flashpoint of fuel oil, with a view to finalising such measures by MSC 104 (2021).

IACS will continue to use its knowledge and expertise and engage closely with the IMO and industry in the development and technical implementation of regulations, striving to ensure that all use of fuels satisfies IMO requirements regarding safety, including operational safety matters related to storage, fuel systems, filters, centrifuges and purifiers, or potential damage to engines.

Adding to weld quality work

IACS launches a new Unified Requirement on non-destructive ship hull steel weld testing.
By Laurent Courregelongue, IACS Expert Group Material and Welding Chair.

The shipbuilding industry meets the challenge of transforming steel plates and profiles into giant structures capable of safely carrying thousands of tons of cargoes and thousands of passengers across the most severe sea states. This technical achievement makes use of many manufacturing processes to cut the steel plates and profiles, to form them to the desired shapes and to join them together to build the hull structures of both the small and giant ships necessary to meet the needs of our economies.

Several welding processes are used by qualified welders or operators to join hull pieces and blocks. Those welding processes, whether they are manual, semi-automated or automated, are carefully selected by shipbuilders for their productivity and suitability to achieve the required results. As an illustration of the variety of welding processes commonly used in shipbuilding, these include shielded metal arc welding (SMAW), gas metal arc welding (GMAW), flux cored arc welding (FCAW), submerged arc welding (SAW), electro-slag welding (ESW) and electro-gas welding (EGW). More recently, laser-arc hybrid welding processes have been developed and used.

Imperfections in the weld joints are inherent to the welding process. The largest hull structures are made of hundreds of kilometres of weld joints, making it necessary to ensure that the workmanship results in finished weld joints with the appropriate quality levels.

NDT testing using ultrasonic flaw detector

IACS has developed and maintained over time a number of Unified Requirements (URs) dealing with the survey of materials and welding aspects during hull construction. Unified Requirements for hull materials (UR W11), welding consumables (UR W17), qualification of welding processes (UR W28) and qualification of welders (UR W32) are currently available. The IACS Expert Group (EG) on Materials and Welding was established to maintain and develop the range of available URs in this field. A significant achievement of this technical harmonisation work is the recent publication of the IACS UR W33 'Non-destructive testing of ship hull steel welds' to complete the range of URs. IACS Recommendation 20 was used as a basis for this new UR and will be deleted accordingly.

Non-destructive testing (NDT) techniques in this UR include techniques adapted to the detection of surface and near surface imperfections (such as visual examination, magnetic particle examination or liquid penetrant examination) and techniques adapted to the detection of internal imperfections (such as radiography or manual ultrasonic examination). Each method has limitations with regards to the detectability of imperfections while the appropriate combination of methods may ensure that the necessary quality level is assessed.

Role of professionals

The role of non-destructive testing operators is essential as they are the professionals carrying out the tests and interpreting the results. Unlike visual testing which allows a direct reading or measuring of the physical imperfections of the weld, the other techniques reveal indications which must be interpreted according to the criteria specific to each method. Reflecting that complexity, UR W33 gives the requirements for the qualification of NDT operators in each technique and more generally for the personnel involved in NDT operations. The qualification requirements are set with reference to the international certification schemes currently used by the sector.

“IACS has developed and maintained over time a number of Unified Requirements (URs) dealing with the survey of materials and welding aspects during hull construction”

Due to the total length of weld joints of various types (butt welds – known as seam welds when longitudinal to the loads direction, tee joints, corner joints and fillet welds) that are necessary to build the hull structure, only visual examination is realistic to cover the full length. The use of non-destructive techniques other than visual is therefore reserved for selected locations depending on the criticality of the structural part for the hull integrity, considering the fatigue sensitive areas and other factors. Imperfections in the welds may be different in nature with various levels of severity depending on their location, shape, size and orientation in a given weld joint. As far as the extent of examination and the quality levels are concerned, UR W33 defines goals and requirements to be complied with by the shipbuilder who is responsible for the preparation of an NDT plan specific to the ship to be built for approval by the classification society. When imperfections are detected and evaluated as outside the required quality levels, they are to be repaired and an extension of the examination may be considered necessary.

While UR W33 covers ship hull steel welds and conventional NDT methods, another significant IACS achievement is the publication UR W34 ‘Advanced non-destructive testing of materials and welds’. UR W34 defines requirements for the use of methods such as phased array ultrasonic testing (PAUT), time of flight diffraction (TOFD), digital radiography (RT-D), radioscopic testing (RT-S), and computed radiography (RT-CR).

Recent IACS’ technical work to develop new unified requirements for NDT of ship hull steel welds and for advanced NDT techniques represents a significant contribution to the set of technical rules serving safety of ships while reflecting industry practices and supporting the use of new technologies.

Quality & Safety

Honest reflection on quality

IACS marked the tenth anniversary of Accredited Certification Bodies' involvement in its IACS Quality System Certification Scheme with some important self-analysis. By Peter Williams, IACS Quality Secretary.

As 2019 drew to a close there was inevitable reflection on the high and low lights of the passing year and a simultaneous look forward to 2020 and the opportunities it presents. The view from IACS Operations Centre, charged with the administration and oversight of the IACS Quality System Certification Scheme (QSCS), has never been more interesting. Turk Loydu's pursuit of IACS membership continues in 2020 and the second meeting of the International Quality Assessment Review Body (IAQRB) is scheduled for February. Both these events are significant and have the potential to mark important landmarks in the evolving history of QSCS and the positive influence IACS has on enhancing the standards of service delivery of classification societies and Recognized Organizations to the benefit of the shipping industry in general.

Maintaining and enhancing standards however is not effortless or something that happens automatically. It must be done conscientiously and worked on with honest introspection; never easy if you are as critical of your own performance as you should be.

This iterative process of analysing your own performance is nothing new. In the field of sport, it is standard practice that athletes and team managers review in forensic detail, after every event; what went well and what aspects of their game can be improved upon. The same process is also long established in Quality. Anyone well versed in quality management will be familiar with the 'Plan-Do-Check-Act' cycle.

It therefore goes without saying that any organisation that is serious about Quality – and IACS is – will cast a critical eye over its systems and processes and make adjustments to ensure they function as well as they possibly can. The process of identifying aspects of QSCS that can be improved is not perhaps as scientific or taken to such a forensic level as it is by elite athletes, but it is nevertheless done and done conscientiously. The fact that QSCS has stood the test of time in terms of its effectiveness and relevance to a constantly changing industry bears testament to that.

Eleven years of quality

This year is the eleventh year that Accredited Certification Bodies have audited members against the requirements of the Scheme. Quality Performance, together with Leadership, Technical Knowledge and Transparency

The inaugural meeting of IQARB was held at IMO from 28 February to 1 March 2019

comprise the four pillars, or guiding principles, of IACS. Integral among these is the ability to openly communicate the concept of class, its vital role and its quality standards. This is a key value for IACS and is an integral part of the IACS mission. In cognisance of this, the developing maturity of the IMO Member State Audit Scheme and increased interest over recent years in the performance of Recognized Organizations and consequently, IACS QSCS, IACS undertook introspection and self-analysis of QSCS in 2019 to determine what, if any, improvements can be made to the Scheme. This is in addition to, and over and above, the more routine and necessary updating of the Scheme.

IACS' work to ensure QSCS remains relevant, effective and appropriate to the needs of all interested parties continues unabated and with no less enthusiasm than when the Scheme was first established.

"QSCS has stood the test of time in terms of its effectiveness and relevance to a constantly changing industry"

Maintaining and enhancing standards is not effortless or something that happens automatically

Harmonisation of terms of conditions for class/statutory issues

IACS provides clarity on the use of different terms for the same class requirements. By Vijay Arora, IACS General Policy Group Chairman.

In 2019, IACS took important steps to clarify the terminology its Members use in relation to classification requirements to maintain class.

The ship will continue to be classed with its classification society so long as it is found – on examination at the prescribed annual and periodical surveys – to be maintained in a fit and efficient condition and in accordance with the periodical survey requirements of the rules of its classification society.

When a surveyor identifies corrosion, structural defects or damage to hull, machinery and/or piece of equipment which, based on the classification society's rules and in the opinion of the surveyor, affects the ship's class, remedial measures and/or appropriate recommendations/conditions of class are specified in order to retain class.

Confusion of different terms

'Recommendation' and 'Condition of class' are different terms used by IACS Members for the same requirements that specify that measures, repairs, request for surveys and so on are to be carried out within a specified time limit in order to retain class. Timeframes are required to be assigned for such actions and it is a requirement of class that such defined actions take place within those timeframes or action will be initiated to suspend or cancel class.

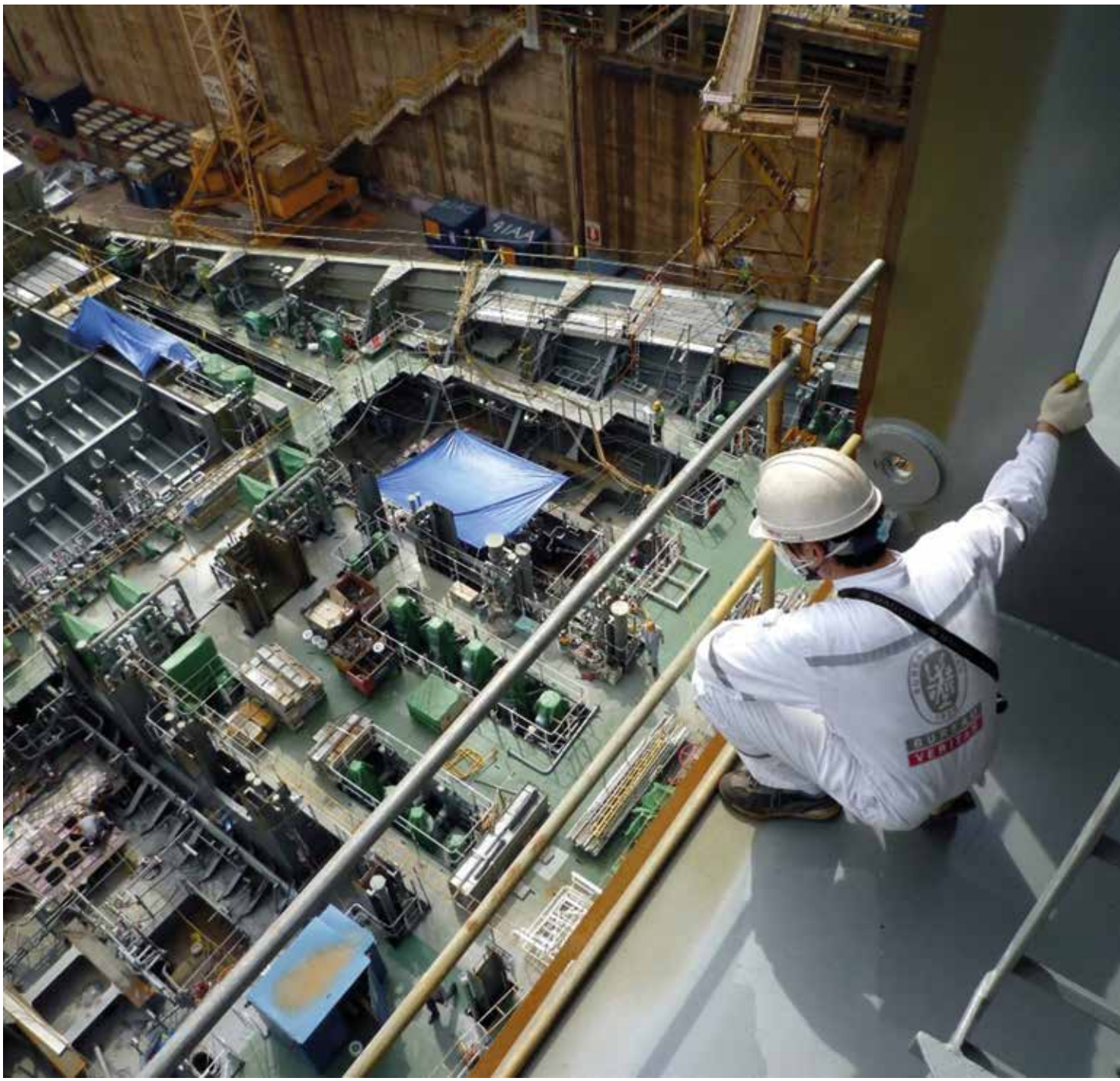
With IACS Members using different terms for the same requirements, the continued use of the two terms was viewed as misleading. From an English language perspective it is incorrect to call an action a 'Recommendation' when the action to be taken is in reality mandatory and required to maintain class. From a language point of view, 'Condition' is viewed as an instruction, whilst a 'Recommendation' is considered as more voluntary.

While those with in-depth knowledge of IACS Resolutions have a clear understanding of the different meanings, others in the industry still use common and general interpretations of the words 'Condition' and 'Recommendation' and there continues to be confusion regarding the fact that 'Recommendation' means mandatory actions.

To deliver clarity, IACS agreed to submit an explanatory paper to International Maritime Organization (IMO) Sub-Committee on Implementation of IMO Instruments (III) inviting comment from Member States. IACS informed IMO about the common meaning of the two terms 'Condition of Class' and 'Recommendation' through submission III 5/INF.27 *Clarification of the terms "Recommendation" and "Condition of Class" in the Rules of Classification Societies* to III fifth session (III 5). The outcome of discussions at III 5 indicated that IMO Member States had a preference for the terminology 'Condition of Class' for all mandatory class matters.

Taking into account concerns from the industry and also the outcome of III 5, IACS concluded that maintaining the status quo on the use of these definitions was no longer suitable. Subsequently, IACS Members initiated an exercise to agree and use common and consistent terminology across the membership with the output of producing a brief, succinct document explaining what the terminology means for the benefit of the industry. During 2019, IACS agreed a policy decision on the use of common terminology with respect to 'Condition of Class', determining that it should only be used for terms related to class matters in line with the outcome of III 5. In

"While those with in-depth knowledge of IACS Resolutions have a clear understanding of the different meanings, others in the industry still use common and general interpretations of the words 'Condition' and 'Recommendation' and there continues to be confusion regarding the fact that 'Recommendation' means mandatory actions"



IACS Members have agreed common and consistent terminology across the membership

addition, IACS decided to apply the policy to statutory matters as well as class matters. Further, the term 'Recommendation' was removed from all relevant IACS Resolutions and Recommendations. The implementation date of these revised IACS Resolutions is 1 July 2020 and the revised IACS Resolutions and Recommendations are available on the IACS website.

Prior to the implementation date of 1 July 2020, 'Recommendations' and 'Condition of class/Statutory condition' are to be read as different terms used by classification societies for the same thing, that is requirements that specific measures, repairs, surveys and so on that are to be carried out within a specific time limit in order to retain classification. Further, IACS will submit a paper to III 7 in July on the relevant actions taken by IACS in respect of the use of the term 'Condition of class/Statutory condition' rather than 'Recommendation' in IACS Resolutions and Recommendations.

Taking quality to the next level

IACS moves towards a fully independent, international quality assessment review body for the IACS Quality System Certification Scheme (QSCS). By Robert Ashdown, IACS Secretary General.

Since 1991, IACS Members have adhered to the IACS Quality System Certification Scheme (QSCS), which establishes a high baseline for quality operations and is designed to improve the standards of survey and certification. The IACS QSCS is constantly reviewed and updated by the Association and provides an all-embracing and structured framework that all IACS Members must comply with.

In 2010, QSCS underwent a step-change to fully and demonstratively ensure its independence when the audits of the IACS Members' quality systems were first conducted by independent Accredited Certification Bodies (ACB). With this significant change now successfully implemented, the QSCS continues to perform strongly under these new arrangements and remains the 'gold standard' for quality operations for classification societies.

As part of IACS' ongoing commitment to continuous improvement in quality, in 2018 the Association investigated whether moves towards a fully independent quality assessment review body would further strengthen maritime stakeholders' confidence in IACS' QSCS and facilitate IMO Member States' awareness of the quality of the performance of their Recognized Organizations (ROs). This investigation resulted in the initiation of a trial of a universal, independent and international quality assessment review body, established under the aegis of the IMO, to review the findings of the Accredited Certification Bodies' audits of IACS Members and their corresponding corrective action plans.

Accordingly, an International Quality Assessment Review Body (IQARB), an advisory, non-decision-making body, was established and tasked with independently reviewing:

1) the adequacy of IACS QSCS in meeting the objectives set for classification societies/ ROs by regulators and industry and in its compliance with the requirements of the RO Code in relation to the relevant provisions of IMO mandatory instruments, such as SOLAS regulations I/6, II-1/3-1 and XI-1/1, etc., as well as the III Code;

2) the performance of ACBs against the criteria of QSCS;

3) the nature of findings; and

4) the robustness and effectiveness of the agreed corrective actions that classification societies/ROs have put in place to address findings identified during the ACB audits.

Following these reviews, it was intended that the IQARB would release, into the public domain, a consolidated report of fact related to the assessment of each IACS Member and its recommendations on the development of IACS QSCS to maintain adherence to the set objectives. These 'statements of fact' and recommendations would therefore be available to any third party that seeks further independent corroboration that the certification process of IACS Members, as undertaken by the independent ACBs, has been assessed competently and separately and independently by IQARB.

The IQARB is composed of suitably qualified individuals from maritime authorities, the IMO Secretariat and industry bodies including those from the insurance industry, shipowners and shipbuilders who, collectively, are representative of the views and interests of the stakeholders that have a particular interest in the work of classification societies and ROs.

The inaugural meeting of IQARB in its trial phase was held at IMO from 28 February to 1 March 2019. During that meeting, there was a general consensus that IQARB presents an excellent opportunity to consolidate the current multi-layered oversight of classification societies/ROs against different but closely related standards, all intended to meet the needs of a multitude of interested parties. The proposed factual statement was recognised as having the potential to provide confidence to interested parties of the independence and integrity of classification societies/ROs' certification by the ACBs. Further, flag State Administrations could voluntarily use the information from IQARB as part of their duty in monitoring/oversight of ROs in terms of the applicable provisions of the III Code and the RO Code. In simple terms – one system that could win stakeholders' trust.

IQARB
International Quality Assessment Review Body

IQARB is composed of suitably qualified individuals from maritime authorities, the IMO Secretariat and industry bodies including those from the insurance industry, shipowners and shipbuilders

In further consideration of the purpose of IQARB the meeting agreed that the long-term objective of the IQARB initiative is to ultimately promote and enhance maritime safety and pollution prevention and, as such, it should be a fully transparent and independent industry scheme that regulatory bodies, flag State Administrations, classification societies, shipowners/managers, insurers, and so on, can understand, trust and have faith in.

IQARB will meet for the second time in February 2020 and will keep the potential for further development of IQARB within this context at the forefront of its deliberations.

"IQARB presents an excellent opportunity to rationalise the current multi-layered oversight of classification societies/ROs against different but closely related standards, all intended to meet the needs of a multitude of interested parties"

Building Competence

Building competencies for the future

IACS Members maintain quality through continuous improvement of their experiences, knowledge and expertise. By Łukasz Korzeniewicz, IACS Quality Committee Chairman.

For over 50 years, IACS and its Members have been building their competencies in their classification of the majority of the world's merchant ships. Close co-operation between IACS Members has improved the safety of classed ships and led to a demonstrable improvement in the quality of the services provided.

IACS, in its role as a principal technical advisor of the International Maritime Organization (IMO), needs to continuously develop itself and its Members' competencies. IACS' Vision and Mission states it is:

- to be a trusted partner of regulators with respect to the development of maritime regulations and to maintain classification as the primary mechanism for practical self-regulation of the maritime industry;
- to establish, review, promote and develop minimum technical requirements in relation to the design, construction, maintenance and survey of ships and other marine related facilities; and
- to assist international regulatory bodies and standard organisations to develop, implement and interpret statutory regulations and industry standards in ship design, construction and maintenance with a view to improving safety at sea and prevention of marine pollution.

IACS' *Blue Book*, which contains all adopted IACS Resolutions and Recommendations, is a unique compendium of classification requirements and statutory interpretations. IACS' Blue Book and its contents are available to all interested parties. Appendix I of this Annual Review contains summaries of the IACS Resolutions published in 2019. In total there were 664 highly technical IACS Resolutions in force at the end of 2019, comprising 38 Procedural Requirements, 207 Unified Requirements, and 419 Unified Interpretations and Common Structural Rules. On top of that, IACS developed and published 133 Recommendations.

The knowledge and competencies of IACS Members were essential in their development. IACS also highly regards the contributions of shipping industry stakeholders, including international and regional regulators, flag State Administrations, shipowners, shipbuilders and underwriters. The development of IACS Resolutions and Recommendations has led to improvement in the safety of the worldwide fleet classed by IACS Members.

Maintaining trust

To maintain the evident trust in IACS Publications, IACS, through its Working Groups, continuously reviews and develops its Publications to ascertain that they remain fit for purpose and also to identify any omissions.

> **The continuous improvement of IACS Members' and their surveyors' competencies is not an empty slogan; it is standard daily practice"**

This also applies to new topics including cyber safety and protection of the environment.

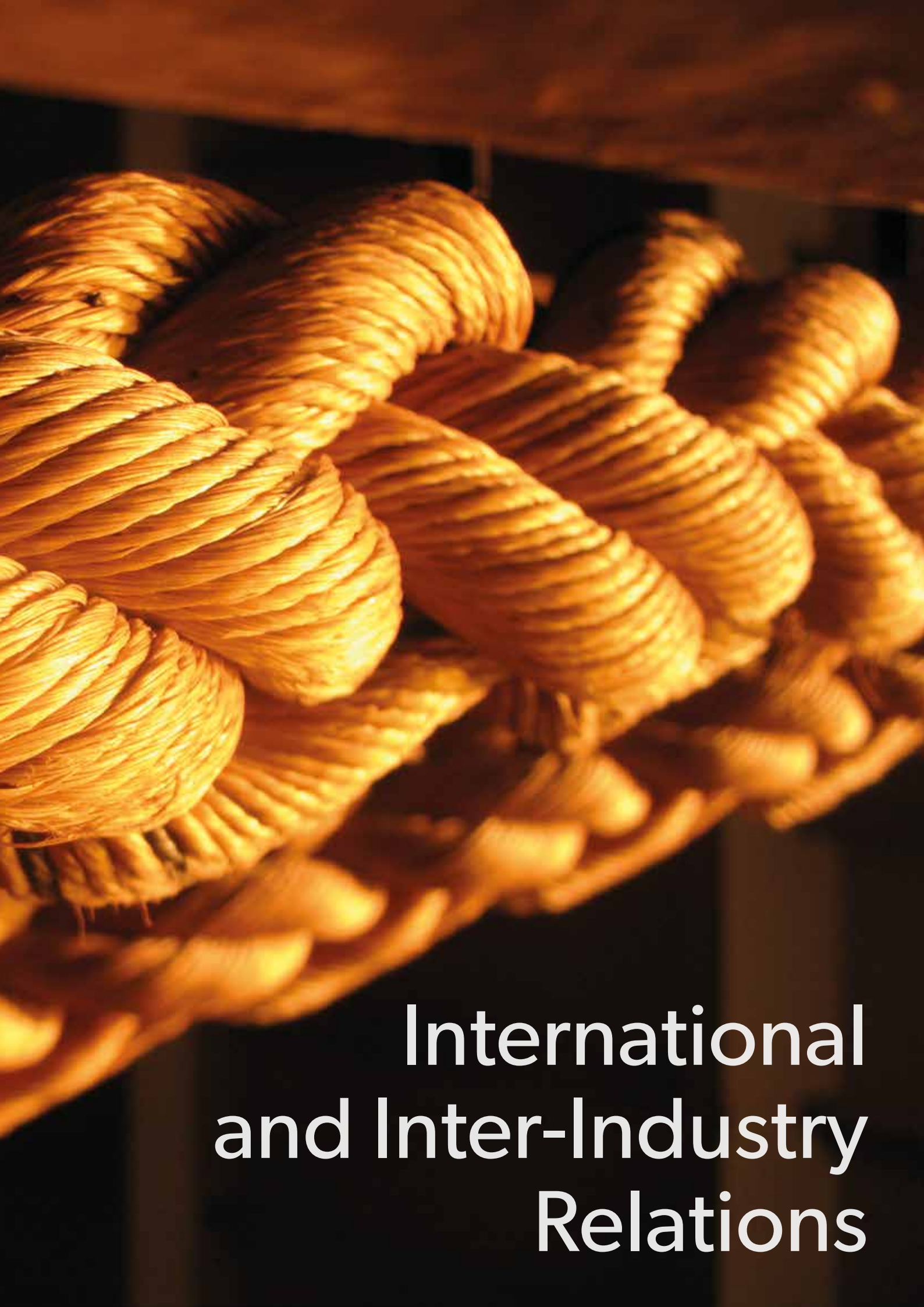
Moreover, IACS continuously develops the 'gold' maritime quality standard: Quality Management System Requirements (QMSR), which is an integral part of IACS' Quality System Certification Scheme (QSCS). As QMSR covers the requirements for compliance with IACS Resolutions as well as specific quality requirements, the certification to the QMSR standard demonstrates the ability of IACS Members to consistently provide high quality services and products which meet the shipping industry's needs.

The last major review of the QMSR was carried out to make it compatible with the latest International Organization for Standardization (ISO) 9001: 2015 standard. ISO 9001 is the international standard that specifies requirements for a quality management system (QMS). As part of this review, the IACS Quality Committee paid special attention to the applicable requirements of the IMO Code for Recognized Organizations (RO Code) ensuring that the 10th Issue of the QMSR remains compatible with it.

To this end, in 2019 the IACS Quality Committee carried out a gap analysis of the 10th Issue of the QMSR against the RO Code. The analysis confirmed that the QMSR is aligned with the RO Code.

To guarantee the highest standard of services, IACS Members implement all IACS Resolutions into their own Rules and they also need to train their surveyors on the latest changes. The experiences of surveyors undertaking ship surveys are used to further improve Members' Rules and IACS Resolutions and/or Recommendations. Competencies of IACS Members depend very much on the competencies of their surveyors. The same applies to Accredited Certification Bodies (ACB) auditors that perform the independent audits of IACS Members for compliance with ISO 9001 and QMSR. ACB competencies depend greatly on the competencies of ACB auditors.

Development and continual review of IACS Publications requires the expenditure of many working hours by all of the highly qualified and competent specialists employed by IACS Members, as well as the input from other organisations which share IACS' values of safer and cleaner shipping. The continuous improvement of IACS Members' and surveyors' competencies is not an empty slogan; it is standard daily practice without which shipping would not be where it is today. IACS Members will continue to rise to the challenges of the future, ensuring that their competencies remain as important tomorrow as they are today.



International and Inter-Industry Relations

Unique support of IMO

Addressing ambiguous IMO requirements, empowering women in the maritime community, and marking the end of an era.

IACS Chair, Arun Sharma of IRS (left) with IMO Secretary General, Kitack Lim

In the IACS Charter, it is stated that in terms of its purposes and aims, IACS "assists international regulatory bodies and standard organisations to develop, implement and interpret statutory regulations and industry standards in ship design, construction and maintenance, with a view to improving safety at sea and the prevention of marine pollution".

The primary international regulatory body is the International Maritime Organization (IMO). Since it was first granted consultative status as a Non-Governmental Organization (NGO) in 1969, IACS has maintained a focus on delivering its role as the Organization's principal technical advisor.

IACS has an Accredited Representative who is supported by dedicated colleagues in the Permanent Secretariat and representatives from the IACS membership who are world-leading technical experts in the matters under consideration at the IMO. IACS submits papers to, and actively participates in, all the meetings of the IMO's technical bodies, relevant to its expertise. These experts not only contribute technical input to the development of new, and amendments to existing, IMO requirements, they also provide a unique degree of insight and feedback on the implementation of the IMO agreed regulatory framework. This is because IACS Members are not only classification societies, but they also act as Recognized Organizations (ROs). In this latter capacity they act on behalf of IMO Member States to verify compliance with IMO's ('statutory') regulations and requirements on ships that fly the flag of those countries.

The 64 papers that IACS submitted to nine IMO meetings in 2019 again demonstrate the unparalleled contribution of IACS, as an NGO, to the work of the IMO. By virtue of the technical expertise and experience of its Members, IACS is therefore unique in the support it offers the IMO.

Unified Interpretations

As in previous years, a significant proportion of the papers that IACS submitted to IMO meetings in 2019 addressed Unified Interpretations (UIs). In finalising the text of a mandatory requirement, there are instances when IMO Member States agree terminology that is open to differing interpretations. Examples of such vague expressions are that arrangements "shall be to the satisfaction of the Administration" or that an "adequate" or "suitable" number of safety equipment items (or spares) are to be provided. In such circumstances, and with a view to facilitating the global and consistent implementation of these provisions, IACS Members often develop a Unified Interpretation of how this mandatory requirement is to be understood.

In all instances, IACS will seek the views of the IMO regarding either a UI that has been finalised and adopted, or a draft UI it has developed. In relation to an adopted IACS UI, the IMO will be advised of IACS' intention that its Members will implement the UI from a future date, unless they are provided with written instruction to apply different interpretations by the flag State Administration on whose behalf they are authorised to act as a Recognized Organization.

A significant majority of the UIs that IACS develops are welcomed, and agreed to, by IMO Member States. They recognise that IACS develops these interpretations with the best of intentions, and they are based on the vast technical expertise and experience in verifying implementation of IMO requirements, which IACS can call upon from its membership.

However, UIs are not seen as a long term solution. The ambition of both IACS and the IMO is that UIs are viewed as temporary fixes that, in due course, can be made obsolete by incorporating the content of the interpretation in a future amendment of the relevant IMO instrument. In this regard, IACS was able to withdraw or delete 57 of its UIs in 2019.

In conclusion, while hopefully transient, UIs continue to represent an important, valuable and proven part of the IMO's regulatory framework.

Maritime Day theme for 2019

The World Maritime Day theme for 2019 was 'Empowering Women in the Maritime Community'. This provided an opportunity to raise awareness of the importance of gender equality, in line with the United Nations' Sustainable Development Goals, and to highlight the important contribution of women within the maritime sector. In his message celebrating World Maritime Day on 26 September 2019, Kitack Lim, IMO Secretary-General, noted that "there are already some great stories out there and this year we want to highlight as many as we can; and we want you to tell your stories, too".

In his letter of congratulation to the IMO Secretary-General on the occasion of the 2019 World Maritime Day, the IACS Chair noted that IACS has already benefited from female representation at every level of the Association from the IACS Council down, including the effective and efficient female leadership of its core General Policy Group. Women continue to play leading roles in IACS' representation both at the IMO and in the European Union. In addition, IACS Safety Panel, one of IACS' busiest and most vital working groups – especially in how IACS interacts with the IMO – will also be chaired by a woman from the beginning of 2020.

Handing over the baton

Paul Sadler retired at the end of 2019. He had been the IACS Accredited Representative to the IMO since 2007. In this role, Paul was the 'voice of IACS' in the plenary of IMO meetings. He presented IACS' agreed input to IMO meetings on a number of issues that were of vital importance to IACS and the international shipping industry, in particular in relation to the implementation of the Goal Based Standards framework for bulk carriers and oil tankers; the finalisation of the Code for Recognized Organizations; and the work IMO has undertaken to address atmospheric pollution from ships, including efforts to reduce greenhouse gas emissions.

IMO Secretary General with outgoing and incoming IACS representatives to IMO

IACS has always recognised Paul's contribution to IMO but was nevertheless deeply impressed by the number of flag State Administrations, industry colleagues and IMO Secretariat employees who paid generous tributes to Paul at a number of private and public functions. At the IACS Council meeting in December, the IACS members were particularly pleased when the IMO Secretary General personally acknowledged Paul's contribution by presenting him with a Letter of Appreciation.

IACS Council has also been pleased to appoint Konstantin (Kosta) Petrov as the IACS Accredited Representative to the IMO from 1 January 2020. Kosta will bring to the role a wealth of knowledge and experience with respect to classification and statutory (IMO) matters.

In conclusion, the relationship between IACS and the IMO continues to deepen and is crucial to both IACS and the IMO in delivering our joint goal of the world being able to rely on a safe, secure and efficient international shipping industry – a mission that is facilitated by the global and consistent implementation of a regulatory framework that is developed and maintained by the IMO.

> **"The relationship between IACS and the IMO continues to deepen and is crucial to both IACS and the IMO in delivering our joint goal of the world being able to rely on a safe, secure and efficient international shipping industry"**

IACS engagement with industry partners

IACS' aim is to be engaged, open and transparent with its industry partners. By Robert Ashdown, IACS Secretary General.

The sustained efforts of IACS over recent years to deepen its engagement with its industry partners has recently been complemented by the publication of high-level position papers (HLPPs) which set down IACS policy positions on matters of key interest to the industry. The first HLPPs were published in 2018 and three more were published last year, on Digitalisation & Connectivity, Ballast Water Management and Marine Autonomous Surface Vessels. A total of six HLPPs are available on IACS' website (iacs.org.uk/about/iacs-position-papers/), all of which are 'living documents' and frequently updated to reflect the latest developments. Further HLPPs are under development.

This initiative, which aligns with IACS' commitment to transparency, is designed to provide industry partners with HLPPs in a common format that explains the background to an issue, IACS' policy position, the work IACS has undertaken to date and ongoing actions that IACS is currently working on. By clearly stating IACS' position in these areas, the HLPPs define IACS' scope for action – noting the apolitical, non-commercial nature of the Association in delivering its mandate to focus on safety and environmental improvement.

IACS continues to have regular dialogue with its industry partners

Meanwhile, IACS continues to have regular dialogue with its industry partners through a series of structured technical and policy level meetings, as well as through set events, such as IACS' Roundtable meetings. The most recent of these took place during Singapore Maritime Week where, once again, closed-door discussions were held with senior industry participants to determine how best IACS can continue to support the maritime sector in a rapidly changing technical and regulatory environment.

In addition to these regular meetings, other collaborative initiatives with industry were taken forward in 2019, including Joint Industry Working Groups on Cyber and on Anchoring Equipment, a correspondence group on fire risks due to leakage from low-pressure fuel pipes, and an expert group on container ship fires. This activity was complemented by specific IACS briefings on other topics to various sectors, not only on technical matters but also on the role of IACS in the maritime community. This included briefings on the dual role IACS' members play as classification societies and Recognised Organizations and how the IACS Quality System Certification Scheme (QSCS) underpins the work of IACS' Members and provides a driving ethos.

Value of industry comment

Meanwhile, IACS continues to recognise the significant added value of having industry comment, at an early stage, on draft rule changes proposed for the upcoming year. This allows IACS to give those views due consideration before launching the package of rule changes that will be proposed for the forthcoming year. In this context, IACS continues to evolve its External Advisory Group whose purpose is to provide a forum to support the maintenance process of Common Structural Rules (CSR) with ongoing advice from experts in modern tanker and bulk carrier structural design, construction and operation. These

experts, who act in their individual capacity, relying on their own experience and expertise, are selected based on their experience and background in design, construction and/or operation of tankers and/or bulk carriers and make significant contributions to the future maintenance of the CSR.

The annual Tripartite meeting of shipowners, shipbuilders and classification societies continues to be the mainstay of cross-industry initiatives. Tripartite 2019 saw the launch of several forward-looking initiatives, such as mitigating underwater noise, and new designs and practices to prevent biofouling. Carbon reduction initiatives were also at the fore with a project initiated to realise an International Maritime Organization (IMO) agreement on effective and implementable short term greenhouse gas (GHG) measures. The initiative aims to move the debate towards mid/long term measures, develop a framework approach for the use of alternative fuels and increase the focus on wind technologies to reduce GHGs.

The challenges posed by the need to decarbonise the shipping industry within a very tight timescale make it ever more important that the various sectors work in close co-operation with one another. Finding realistic, implementable and safe solutions and delivering those in the most efficient and cost-effective manner will best be achieved by close dialogue. Tripartite can play an important part in facilitating that process.

“The challenges posed by the need to decarbonise the shipping industry within a very tight timescale make it ever more important that the various sectors work in close co-operation with one another”

IACS has published a series of high-level position papers

Team effort yields results

Cyber Systems Panel and Joint Working Group – Cyber Systems (JWG/CS) working as a team.

By the end of the year 2018, a set of 12 IACS Recommendations relating to Cyber Systems had been published and the year 2019 focused on the subsequent step which was to consolidate the Recommendations into a single comprehensive Recommendation, including identifying ways in which such work should be carried out. In order to successfully proceed with the consolidation work, there was a clear call for stronger collaboration with the JWG/CS consisting of the industry stakeholders and member class societies, which resulted in four meetings being held during 2019.

As a result of these meetings a Goal Based Approach to the consolidation was strongly supported by the industry stakeholders. This type of approach is familiar to most of the participants and it would identify origin and purpose in each of the resulting detail requirements. Also, a common ground was found on items such as:

- Focus of the work on newbuild ships.
- Maximum use of existing standards including those for industrial control systems and the industry standard for software maintenance.
- Alignment with the five NIST capabilities (identify, protect, detect, respond and recover).
- Considering ships' OT systems and IT systems only when they are connected with the OT systems.

A further step was then taken with the most active members of the JWG forming a Focus Group to provide detailed support to the IACS Project Team that was given the task of actual consolidation of the Recommendations.

Central to the success of this collaboration was the planning to:

- Follow the Goal Based Standards approach to identify which parts of the original Recommendation were directly applicable.
- Identify the parts of the 12 Recommendations which related to the five NIST (identify, protect, detect, respond, recover) elements.
- Track the comments raised, discussions that followed and the conclusions reached.
- Agree on a Table of Contents and a common format that would identify, for example, the associated verification requirements.
- Identify aspects of the original Recommendations that would overlap with operational procedures and which would be addressed by other stakeholders.

The more open and collaborative approach required considerable resource from all sides but it led to much more effective processes and results, and will be supported again in the future when there is another significant output required of IACS and the Cyber Systems Panel. In the short term, it is likely that the pace of the JWG work will be less frantic so that JWG meetings can be arranged and planned well in advance to support the needs of delegates and allow fuller and calmer consideration by all participants.

JWG and others

Extending the principle of collaboration between the JWG and the Panel, there was also agreement to coordinate meetings with the EU in areas of common interest. Coordinating with IACS, EU representatives of the JWG joined the Panel Chair to attend meetings with DG MOVE, DG CNECT and ENISA. This provided an opportunity for the EU to gain a better insight into the work that was taking place amongst other stakeholders and a mechanism for the JWG and IACS to provide EU feedback to their members. The frank exchanges were considered successful by all participants and will be continued

IACS is very grateful to the JWG/CS delegates and their organisations for their continued support.

Spotlight on anchoring equipment

A joint industry working group looks to reduce the risk of anchoring system incidents and related injuries. By Adrian Kahl, IACS representative to the JIWG.

Despite continuous improvements to regulations and standards of anchoring systems for ships, and the publication of various operational guidance documents by various organisations, incidents and accidents during anchoring operations still occur. INTERTANKO (the International Association of Independent Tanker Owners) has established a Joint Industry Working Group (JIWG) to consider appropriate actions to minimise the risk of such incidents and associated potential serious injuries.

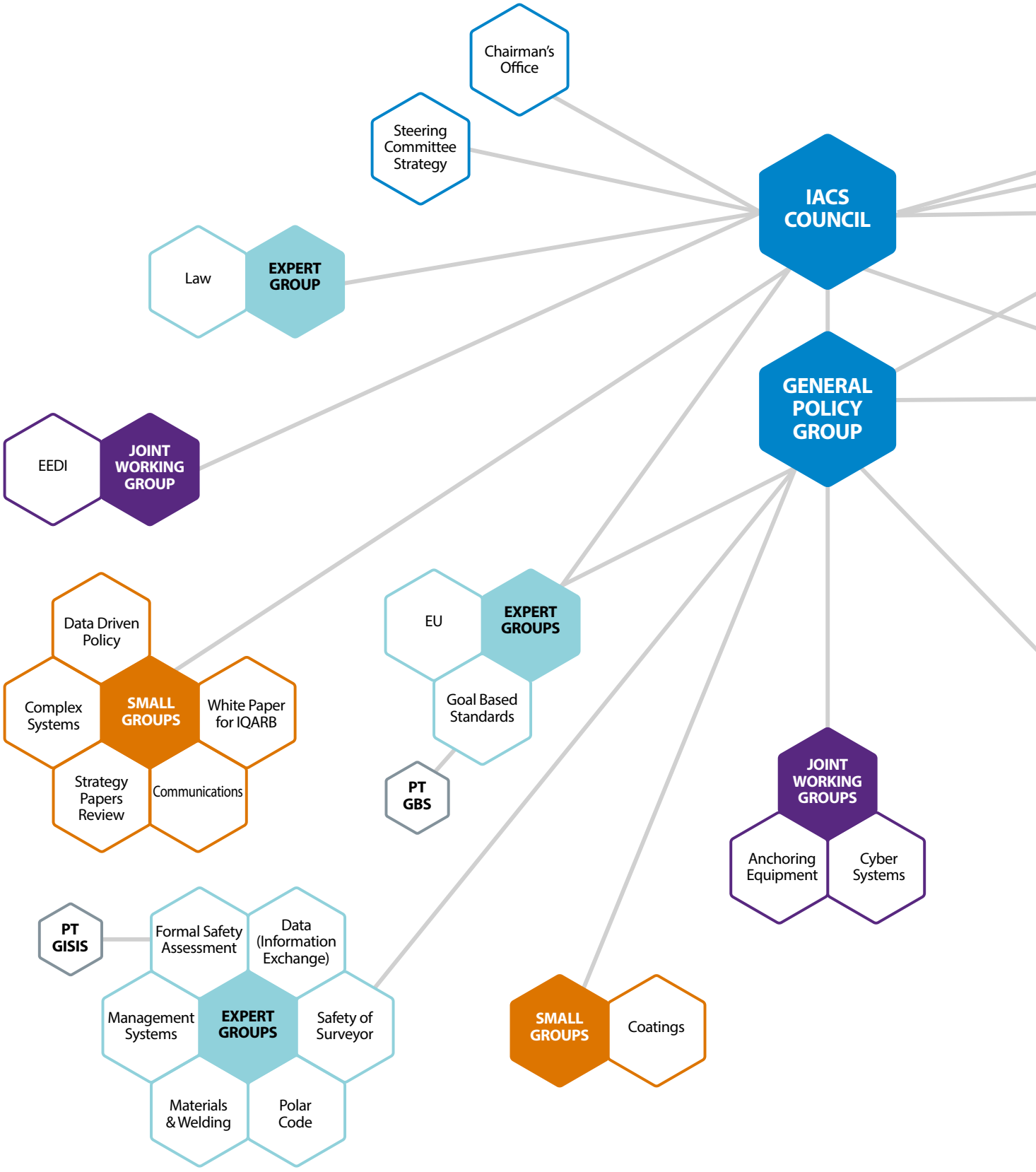
Many stakeholders participate in this JIWG, including ship owners' associations, ship designers/builders, anchoring equipment manufacturers as well as classification societies, represented by IACS.

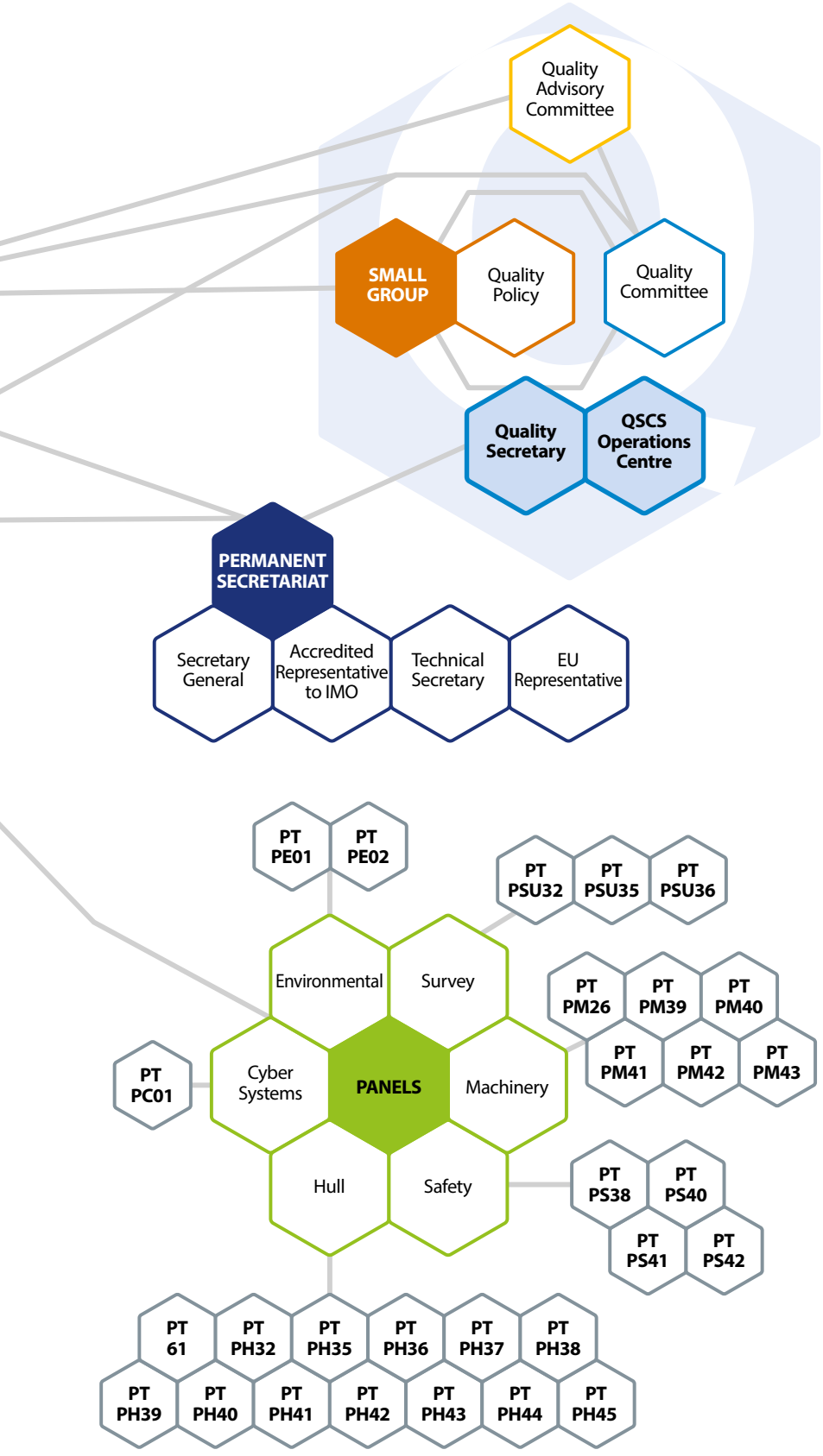
At the first meeting in October 2019, the JIWG agreed as a first step to gather relevant data on incidents and accidents during anchoring, including information on the environmental conditions at the time of the incident or accident. Further, a survey of environmental conditions of a representative selection of the world's anchorages is planned. The data will be assessed to check if particular proposed actions are needed, either in terms of improved design or operational guidance, or both.

IACS Organisation 2019

IACS Organisation 2019

IACS deals with multiple tasks to advance the goal of safer and cleaner shipping.





Project teams in detail

EG- Formal Safety Assessment – 1 Project team

PT GISIS	Examination and Testing of new GISIS MCI module

EG-Goal Based Standards – 1 Project team

PT GBS	GBS Maintenance

Cyber System Panel – 1 Project team

PT PC01	Consolidation of Recommendations

Hull Panel – 13 Project teams

PT 61	Polar Code issues
PT PH32	CSR Maintenance Team
PT PH35	GBS issues on loads
PT PH36	GBS issues on Safety factors
PT PH37	GBS issues on fatigue
PT PH38	Whipping on Containerships
PT PH39	BC cargo hold coatings
PT PH40	Wave data investigations
PT PH41	CSR Software Crosscheck
PT PH42	Recommendation 132
PT PH43	Buckling requirements
PT PH44	Fatigue Assessment
PT PH45	CSR corrosion additions reassessment

Safety Panel – 4 Project teams

PT PS38	IGC Code interpretations
PT PS40	Maintenance of IACS Rec.110
PT PS41	BTWS fire safety protection
PT PS42	UR F44 to include chemical tankers

Machinery Panel – 6 Project teams

PT PM26	IGF development
PT PM40	Polar code issues for icebreakers
PT PM39	Barred speed range investigations
PT PM41	Shaft alignment investigations
PT PM42	Retrofitting issues for BWM
PT PM43	Revision of UR M78

Survey Panel – 3 Project teams

PT PSU32	Survey of BHD penetrations
PT PSU35	IGC Code Loading & Discharging
PT PSU36	Revision of UI GC 12

Environmental Panel – 2 Project team

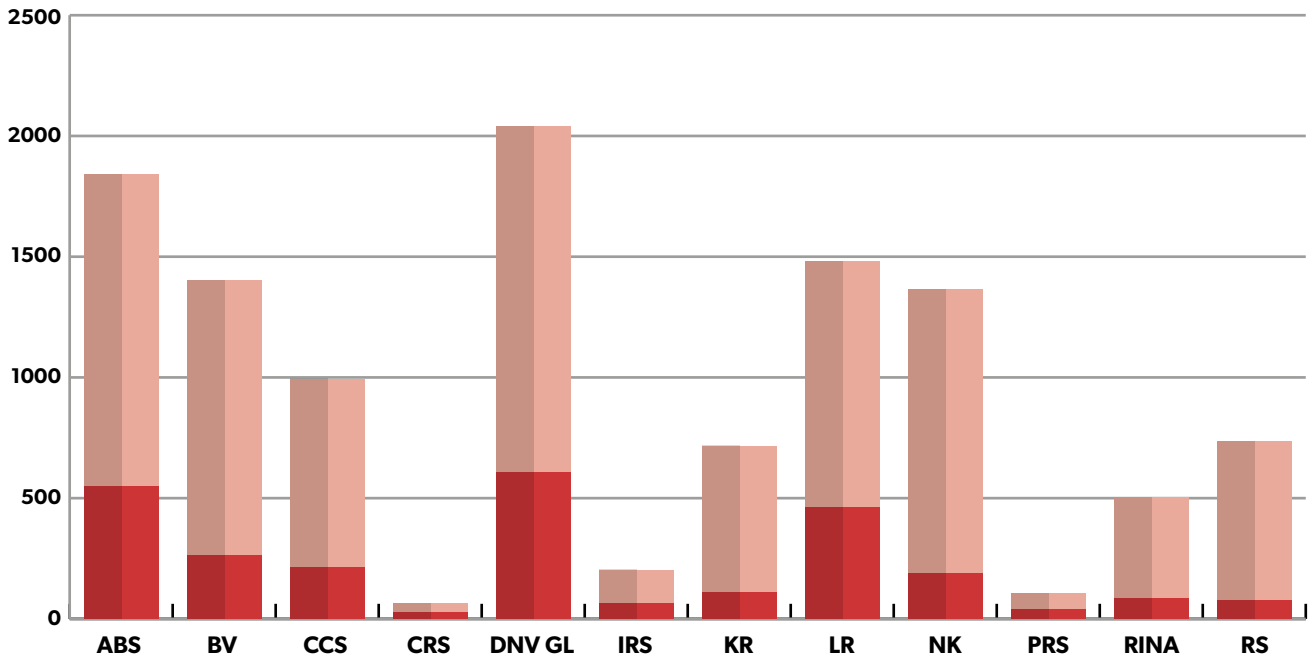
PT PE01	Revision of PR 38
PT PE02	Critical review of PR 38

IACS Class Report 2019

IACS Class Report Data 2019

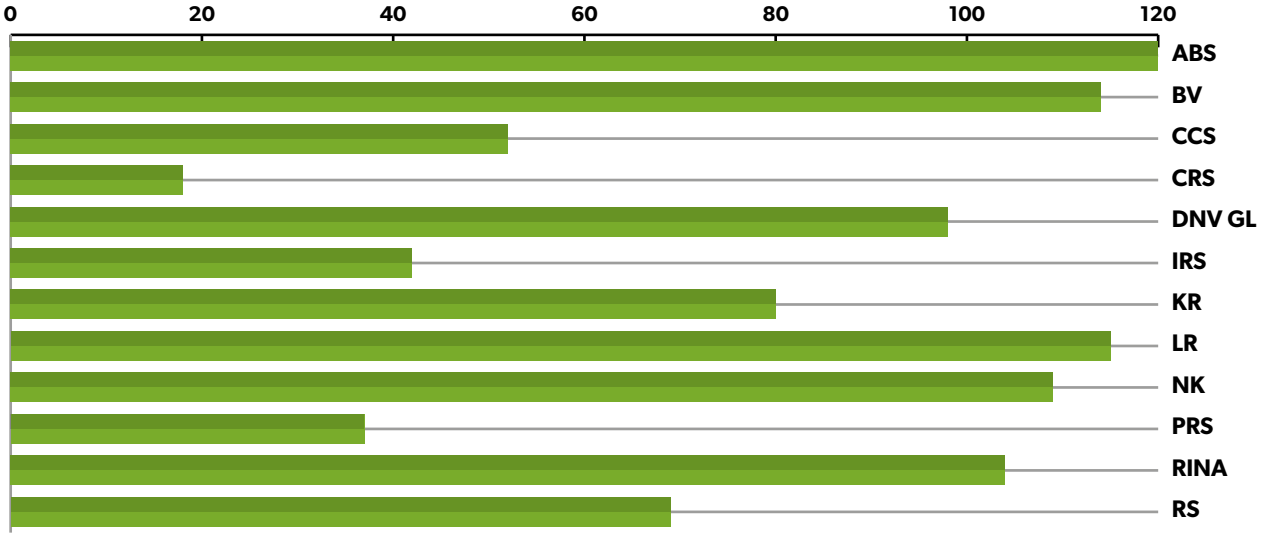
Classed fleet figures include ocean going self-propelled ships of 100 GT and over, excluding fishing vessels, military vessels and pleasure craft, with dual classed ships counted at 100%.

Number of surveyors*



*Combined total number of surveyors, consisting of **the number of exclusive plan approval engineers** (RO Code A1.1.2 Plan approval staff are the personnel authorised to carry out design assessment and to conclude whether compliance has been achieved), and **the number of exclusive surveyors involved in surveys on ships** (RO Code A1.1.1 Survey staff are the personnel authorised to carry out surveys (in operation and under construction), and to conclude whether or not compliance has been achieved.)

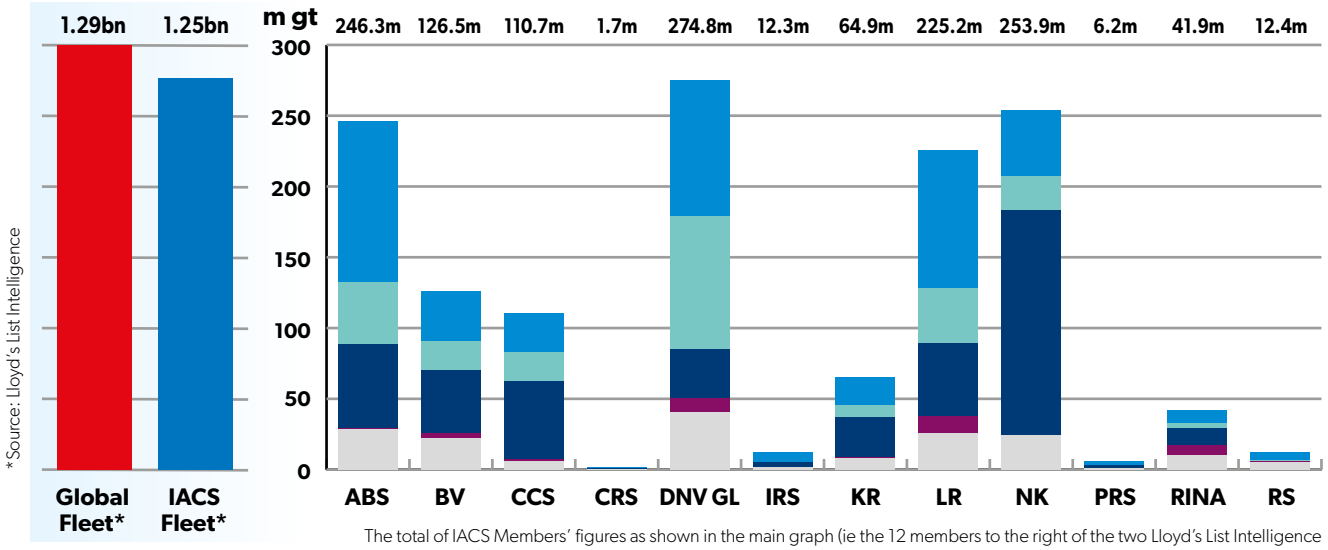
Number of recognising flag State authorities*



*Number of recognising flag State authorities means number of RO agreements with flag States, with general or standing authorisation to act on their behalf for any statutory certificate.

Total gross tonnage by type

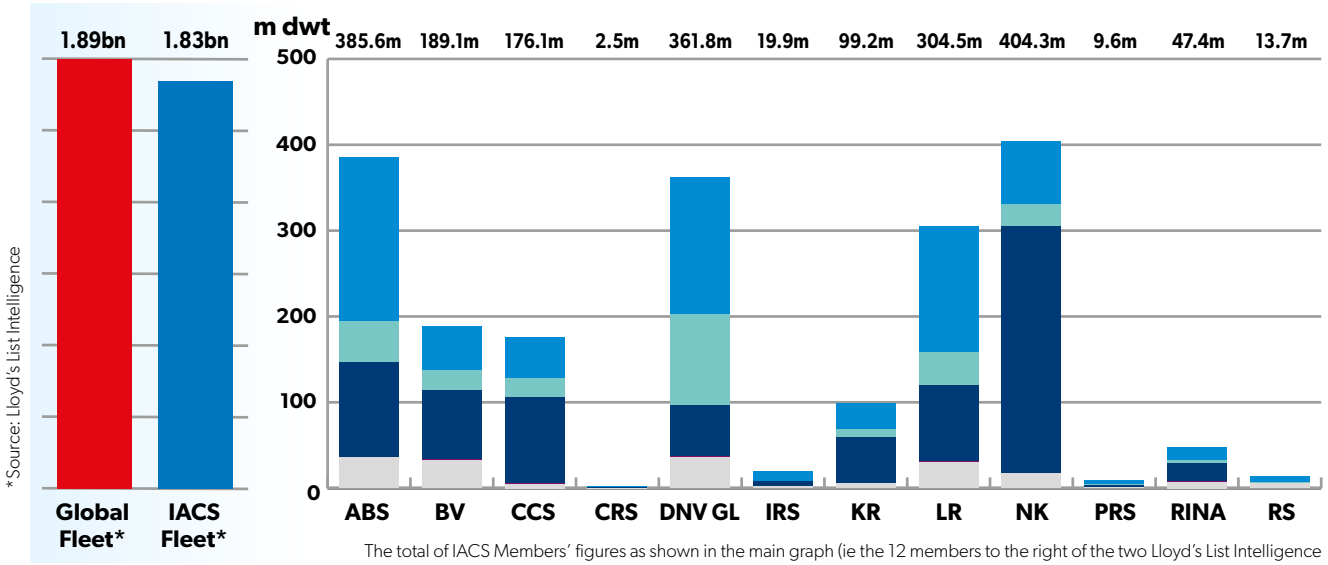
Tankers (crude, product & gas) # Container vessels # Dry bulk # Passenger vessels (over 12 pax) # Other ship types



The total of IACS Members' figures as shown in the main graph (ie the 12 members to the right of the two Lloyd's List Intelligence columns) is in excess of the Lloyd's List Intelligence global figure as each IACS Member counts dual classed ships at 100%.

Total deadweight by type

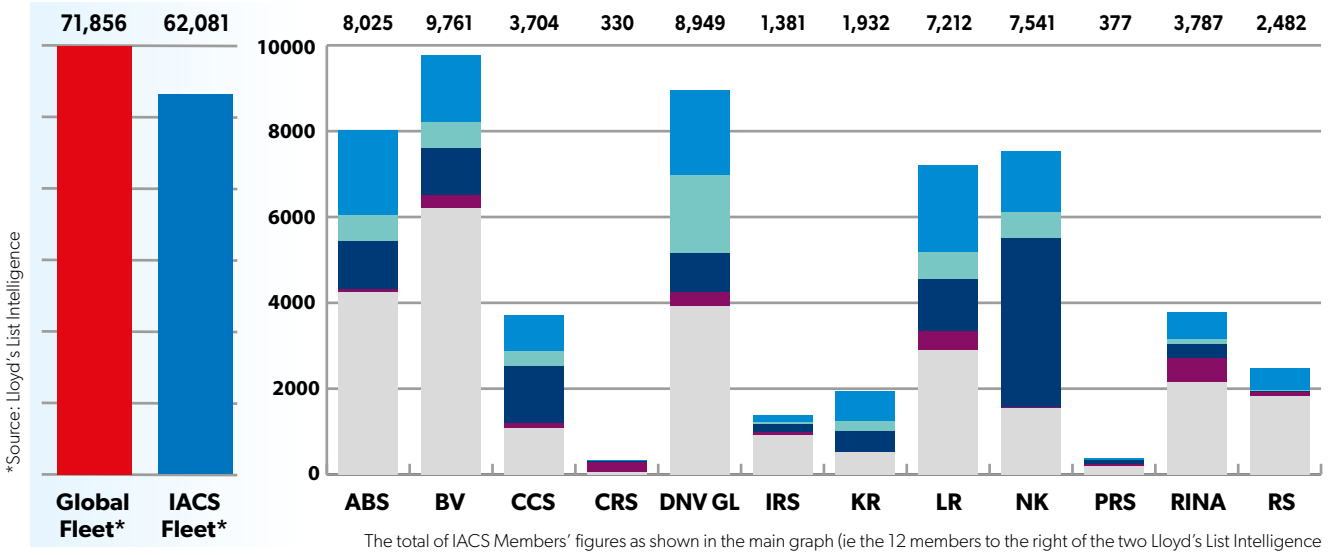
Tankers (crude, product & gas) # Container vessels # Dry bulk # Passenger vessels (over 12 pax) # Other ship types



The total of IACS Members' figures as shown in the main graph (ie the 12 members to the right of the two Lloyd's List Intelligence columns) is in excess of the Lloyd's List Intelligence global figure as each IACS Member counts dual classed ships at 100%.

Total number of vessels by type

Tankers (crude, product & gas) # Container vessels # Dry bulk # Passenger vessels (over 12 pax) # Other ship types



The total of IACS Members' figures as shown in the main graph (ie the 12 members to the right of the two Lloyd's List Intelligence columns) is in excess of the Lloyd's List Intelligence global figure as each IACS Member counts dual classed ships at 100%.

IACS Publications

IACS' contribution to safer and cleaner shipping

IACS resolutions cover a range of class, regulatory and operational matters of relevance across the industry.

The development and continuous review of IACS Resolutions and Recommendations is an essential part of the Association's work. Keeping this large body of material up-to-date is vital to maintain its ongoing relevance while the production of new Resolutions in response to technical, regulatory or operational advances demonstrates IACS' technical leadership and responsiveness. The selection below represents only a small sample of the work undertaken in 2019 and highlights IACS' activity across the maritime sphere. A list of all IACS Resolutions amended or developed during 2019 can be found in Appendix I which starts on page 74.

Global implementation of IMO Regulations for gas-fuelled ships

The IMO's Maritime Safety Committee (MSC) adopted resolutions MSC Res.391(95) - International Code of Safety for Ships Using Gases or Other Low-flash Point Fuels (IGF Code) and MSC.370(93) to amend the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (IGC Code). To enable global and consistent implementation, IACS has developed and revised various Unified Interpretations for the IGF Code and the revised IGC Code.

UI GF18 (New Feb 2019)

UI GF18 provides interpretation of the level indicator in the bilge well of tank connection spaces of independent liquefied gas storage tanks mentioned in Paragraph 15.3.2 of the IGF Code (MSC Res.391(95)), allowing the use of level switches.

UI GC21 (New Apr 2019)

UI GC21 provides interpretation for 'Other edge preparations' in Regulation 4.20.1.2 of the IGC Code MSC.370(93)) regarding tank construction weld joints, such as the utilisation of cruciform full penetration welded joints in a bi-lobe tank with centreline bulkhead.

UI SC6 (Rev.1 Mar 2019)

UI SC6 provides interpretation for the emergency source of electrical power on gas carriers and chemical tankers mentioned in regulation 43.6, Chapter II-1 of SOLAS. This revision aligned UI SC6 with the revised IGC Code (MSC.370(93)).

UR G3 (Rev.7 Dec 2019)

UR G3 provides general principles for approval and survey of the relevant items of liquefied gas tankers for classification purposes. This revision introduces/amends the requirements in accordance with the revised IGC Code (Res. MSC.370(93)).

Other publications revised in 2019 related to the IGF Code and the revised IGC code included UI GC13, UI GC20, UI GC22, UI GC24, UI GC25, UI GC26, UI GC27, UI GC28 and UI GC29.

Adoption of 2017 Selective Catalytic Reductions (SCR) Guidelines

The IMO's Marine Environment Protection Committee (MEPC) adopted Resolution MEPC.291(71) 2017 guidelines addressing additional aspects of the NOx Technical Code 2008 with regard to particular requirements related to marine diesel engines fitted with selective catalytic reductions (SCR) systems. IACS has revised various Unified Interpretations for the consistent implementation of the NOx technical code 2008, as amended, and 2017 SCR guidelines.

UI MPC30 (Rev.1 Nov 2019)

UI MPC30 provides interpretation of terms contained in Table 3 – Symbols and Subscripts for Terms and Variables of the Introduction to the NOx Technical Code 2008. This UI was updated based on amendments to the NOx Technical Code and on the adoption of the 2017 SCR Guidelines (Res. MEPC.291(71)).

UI MPC74 (Rev.1 Nov 2019)

UI MPC74 provides interpretations regarding the necessary data to fully define the engine performance and enables calculation of the gaseous emissions, in accordance with paragraph 5.12 of NOx technical code 2008. This UI was updated based on amendments to the NOx Technical Code and on the adoption of the 2017 SCR Guidelines (Res. MEPC.291(71)).

UI MPC112 (Rev.1 Nov 2019)

UI MPC112 provides interpretations of the terms contained in MEPC.291(71), Paragraph 3.2.8, in particular NOx measurement devices incorporated in a SCR feedback or feed forward reductant control system. This UI was updated based on amendments to the NOx Technical Code and on the adoption of the 2017 SCR Guidelines (Res. MEPC.291(71)).

Other publications revised in 2019 relating to the NOx Technical Code included UI MPC30, UI MPC33, UI MPC40, UI MPC45, UI MPC53, UI MPC54, UI MPC58, UI MPC59, UI MPC77, UI MPC115 and UI MPC116. IACS has also deleted some obsolete UI MPCs (refer to Appendix I).

Clarity on the use of 'Condition of Class'

'Recommendation' and 'Condition of Class' are two different terms used by IACS Members for the same requirements that specify measures, repairs, request for surveys etc. that are to be carried out within a specified time limit in order for vessels to retain class. During the discussions at IMO's Sub-Committee III 5, IMO Member States preferred the term 'Condition of Class' for all mandatory class matters. IACS has therefore harmonised the terms 'Recommendation' and 'Condition of Class' with only the term 'Condition of Class' being retained.

PR 1A

PR 1A contains procedures and requirements pertaining to transfer of class from one society to another society. This revision harmonised the terms of 'Recommendation' and 'Condition of Class' with only the term 'Condition of Class' being retained.

UI GC13

UR GC13 provides interpretation for paragraphs 4.10.14 and 4.10.16 of the IGC Code, as amended. This revision harmonised the terms of 'Recommendation' and 'Condition of Class' with only the term 'Condition of Class' being retained.

Developing and continuously reviewing Resolutions and Recommendations is vital

UR Z7.1

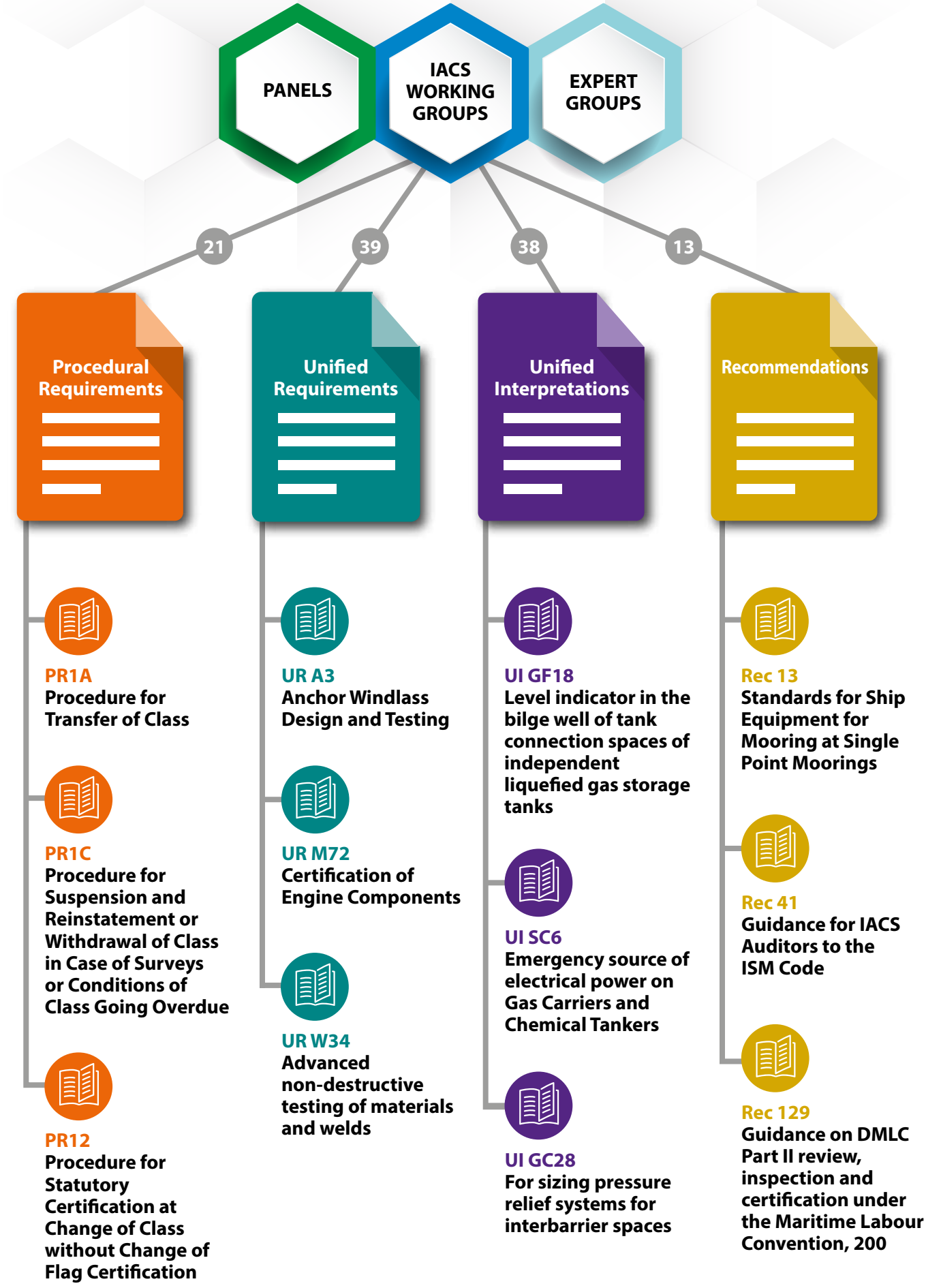
UR Z7.1 provides the requirements of hull surveys for general dry cargo ships and is applicable to all self-propelled general dry cargo ships of 500 GT and above except for a few cargo types listed in the UR. This revision has harmonised the terms of 'Recommendation' and 'Condition of Class' with only the term 'Condition of Class' being retained.

Rec 98

Rec 98 stipulates the role of surveyors of Recognized Organizations in the performance of surveys and their duties toward flag State Administrations and port authorities, in line with the requirements of the statutory codes and conventions. This revision harmonised the terms 'Recommendation' and 'Condition of Class' with only the term 'Condition of Class' being retained and aligned the Recommendation with IMO Resolution A.1119(30).

Other publications relating to the harmonisation of the terms 'Recommendation' and 'Condition of Class' included PR1A, PR1B, PR1C, PR1D, PR1 ANNEX, PR3, PR12, PR16, PR20, PR35, UI GC13, UR Z7.1, UR Z20, Rec 11, Rec 41, Rec 96 and Rec 98.

IACS new and revised documents 2019



New technologies in non-destructive testing (NDT) techniques

Advanced non-destructive testing (NDT) techniques (Phased Array Ultrasonic Testing (PAUT), Time of Flight Diffraction (TOFD) and Automated Ultrasonic Testing (AUT), etc) are being used by the industry. IACS has developed new Unified Requirements for NDT of ship hull steel welds and for advanced NDT techniques making a significant contribution to the set of technical rules serving the safety of ships while reflecting industry practices and supporting the use of new technologies.

UR W34 (New Dec 2019)

UR W34 introduced minimum requirements on the methods and quality levels that are to be adopted for advanced non-destructive testing (ANDT) of materials and welds during new building of ships.

UR W35 (New June 2019)

UR W35 was developed to provide requirements for non-destructive testing (NDT) suppliers. These Unified Requirements ensure that a supplier is using appropriate procedures, has qualified and certified personnel and has implemented written procedures for training, experience, education, examination, certification, performance, application, control, verification and reporting of NDT.

Other publications revised in 2019 due to new technologies in non-destructive testing (NDT) techniques included UR W23, UR W31 and UR W33.

Definitions

UR

Unified Requirements are adopted Resolutions on matters directly connected to or covered by specific Rule requirements and practices of classification societies, and the general philosophy on which the rules and practices of classification societies are established.

Subject to ratification by the governing body of each IACS Member, Unified Requirements should be seen as minimum requirements to be incorporated in the Rules and practices of Members within one year of approval by the IACS General Policy Group.

While each Member remains free to set more stringent requirements, the existence of a UR does not oblige a Member to issue respective Rules if it chooses not to have Rules for the type of ship or marine structure concerned.

CSR

The IACS Council adopted the **Common Structural Rules** for Double Hull Oil Tankers (CSR-OT) and Common Structural Rules for Bulk Carriers (CSR-BC) on December 14, 2005, for implementation on April 1, 2006, on the basis that these Rules were founded on sound technical grounds, and achieved the goal of more robust and safer ships.

These two sets of Rules were developed independently, and in order to remove variations and achieve consistency, IACS decided to harmonise these Rules to create a single set of Rules – "*Common Structural Rules for Bulk Carriers and Oil Tankers*" (CSR BC & OT). This comprised two parts: Part One gave requirements common to both bulk carriers and double hull oil tankers and Part Two provided additional specialised requirements specific to either bulk carriers or double hull oil tankers.

PR

Procedural Requirements are adopted Resolutions on matters of procedures to be incorporated in the practices and procedures of IACS Members within the periods agreed by the IACS General Policy Group.

UI

Unified Interpretations are adopted Resolutions on matters arising from implementing the requirements of IMO Conventions or Recommendations. The Resolutions can involve uniform interpretations of Convention Regulations or IMO Regulations on matters that are unclear.

Interpretations are circulated to the flag State Administrations concerned or sent to IMO for information. They are also designed to aid the development of regulations that are clear, unambiguous and can be easily applied by IACS Members to ships whose flag State Administrations have not issued definite instructions on the interpretation of the IMO regulations concerned, amid statutory certification on behalf of those flag Administrations.

Recommendations

IACS produces **Recommendations** and guidelines related to adopted Resolutions that not only deal with matters of class but also offer some advice to the marine industry.


17
6
125

Major Events 2019

Major Events 2019

January, London

External Advisory Group

IACS once again brings together key stakeholders to offer input on the maintenance process of Common Structural Rules.

January, Split

ACB Refresher Training

IACS' annual seminar with the Accredited Certification Body (ACB) auditors takes place to share best practice and discuss future focus areas.

January, Geneva

IACS Meets with ILO

IACS sends a delegation to meet with the International Labour Organization's Director to discuss better information sharing on MLC implementation issues.

IQARB
International Quality Assessment Review Body

February, London

IQARB

Inaugural meeting of the International Quality Assessment Review Body, established to provide greater transparency and independent oversight of IACS Quality Scheme.

February, London

New IACS Offices

After almost 15 years, IACS Permanent Secretariat moves to a new home in Westminster.

April, Singapore

IACS Roundtable

IACS holds its second Roundtable of senior representatives from industry and regulators to discuss how class and IACS can best continue to support the maritime sector.

May, Lisbon

IACS Meets with EMSA

IACS representatives meet with the new Executive Director of EMSA to explore further opportunities for closer working.

June, London

Industry Technical Meetings

IACS holds its annual technical meetings with industry associations to progress joint work on matters of mutual interest.

July, London

IACS at IMO

IACS makes a presentation to the IMO's III Committee on its Quality Certification Scheme and the outcome of the IQARB meeting.

September, Brussels

MEP Introductory Meetings

IACS representatives travel to the European Parliament to introduce the Association to the new intake of MEPs.

September, London

IACS Press Conference

The IACS Chair, Arun Sharma of IRS, gives a press conference highlighting his objectives for his year in office.

October, Tokyo

Tripartite

IACS participates fully in the Tripartite work between ship builders, owners and class where de-carbonisation is top of the agenda.

November, Hong Kong

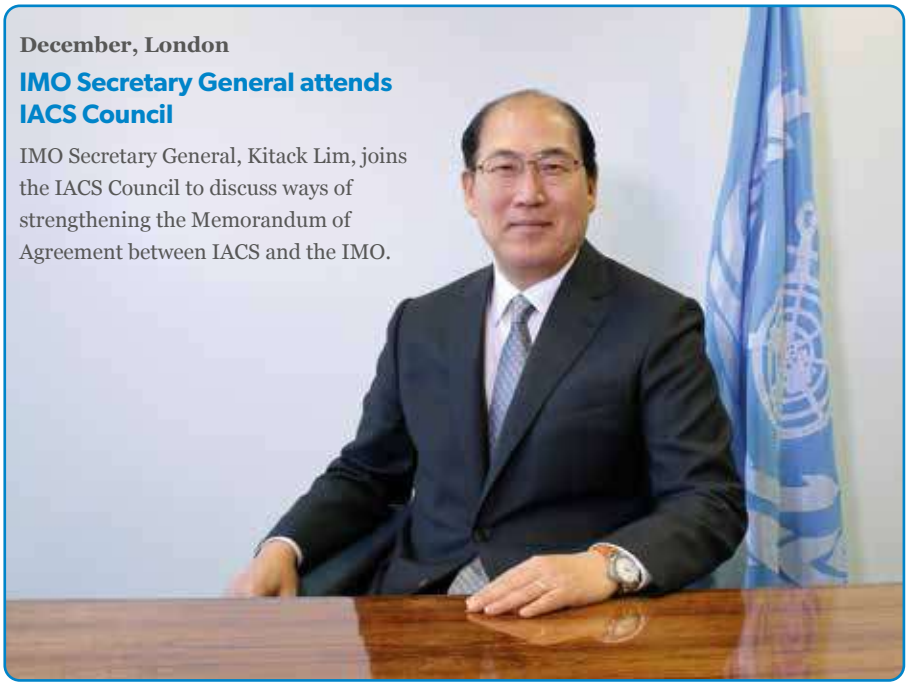
End User Workshop

The 'end users' of IACS Quality Scheme assemble to share best practice and identify future improvements.

December, Shanghai

Marintec China

IACS Chair, Arun Sharma of IRS, delivers a keynote speech at the Senior Maritime Forum during Marintec China on emerging trends in the maritime industry.



December, London

IMO Secretary General attends IACS Council

IMO Secretary General, Kitack Lim, joins the IACS Council to discuss ways of strengthening the Memorandum of Agreement between IACS and the IMO.

December, London

IACS appoints new Accredited Representative to IMO

Following the retirement of IACS' long-standing Accredited Representative to IMO, Paul Sadler, IACS welcomes his replacement Mr Konstantin Petrov to the role.

IACS Members

IACS Members

IACS consists of 12 member societies, details of which are listed below. Chairmanship of IACS is on a rotational basis with each member society taking a turn.

The current chairmanship is as follows:

Chair of Council	Mr. Arun Sharma	Indian Register of Shipping
Vice-Chair (incoming Chair)	Dr. Toshiyuki Shigemi	ClassNK
Vice-Chair (immediate past-Chair)	Mr. Hyung Chul LEE	KR

ABS
American Bureau of Shipping
www.eagle.org

BV
Bureau Veritas
www.veristar.com

CCS
China Classification Society
www.ccs.org.cn/ccswzen/

CRS
Croatian Register of Shipping
www.crs.hr

DNV GL
www.dnvgl.com

IRS
Indian Register of Shipping
www.irclass.org

KR
Korean Register
www.krs.co.kr

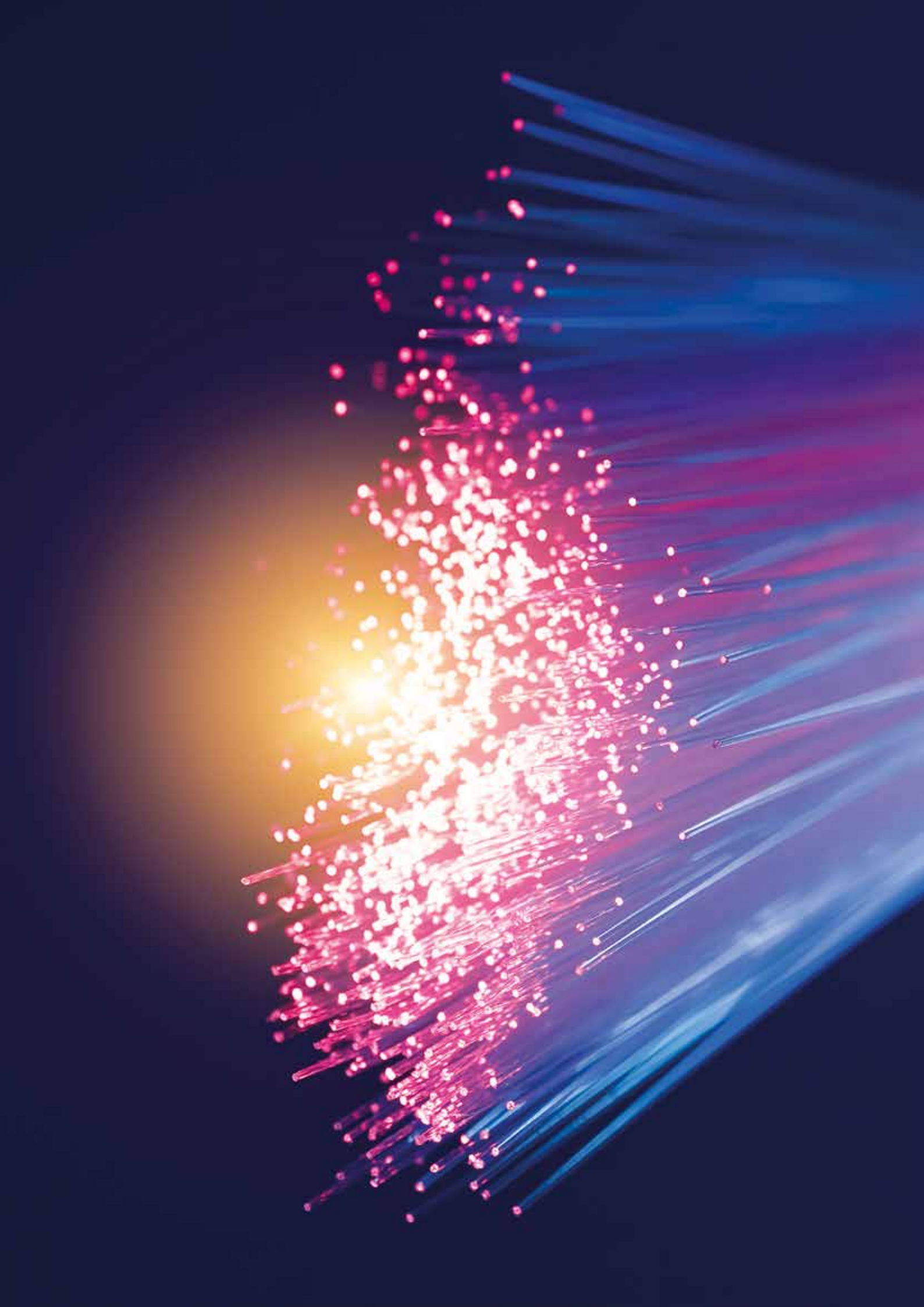
LR
Lloyd's Register
www.lr.org

NK
Nippon Kaiji Kyokai
www.classnk.or.jp

PRS
Polish Register of Shipping
www.prs.pl

RINA
RINA Services S.p.A.
www.rina.org

RS
Russian Maritime Register of Shipping
www.rs-class.org/en/



Appendices

Appendix I Summaries of IACS Resolutions published in 2019

Summary of New/Revisions to IACS Unified Requirements published in 2019

New **Revised** **Corrigenda** **Deleted/Withdrawn**

Index	Resolution no.	Revision	Adoption	Title	Implemention Date
1	UR M52	Rev.1	Jan 2019	Length of Aft Stern Bush Bearing	1 Jan 20
2	UR M35	Rev.8	Jan 2019	Alarms, Remote Indications and Safeguards for Main Reciprocating I.C. Engines Installed in Unattended Machinery Spaces	1 Jan 20
3	UR M72	Rev.2	Jan 2019	Certification of Engine Components	1 Jan 20
4	UR S17	Rev.10	Mar 2019	Longitudinal Strength of Hull Girders in Flooded Condition for Non-CSR Bulk Carriers	1 Jul 20
5	UR S18	Rev.10	Mar 2019	Evaluation of Scantlings of Corrugated Transverse Watertight Bulkheads in Non-CSR Bulk Carriers Considering Hold Flooding	1 Jul 20
6	UR S21A	Corr.2	Mar 2019	Evaluation of Scantlings of Hatch Covers and Hatch Coamings and Closing Arrangements of Cargo Holds of Ships	-
7	UR S30	Corr.1	Mar 2019	Cargo Hatch Cover Securing Arrangements for Bulk Carriers not Built in Accordance with UR S21 (Rev.3)	-
8	UR Z17	Rev.14	Mar 2019	Procedural Requirements for Service Suppliers	1 Jan 20
9	UR Z3	Rev.8	Apr 2019	Periodical Survey of the Outside of the Ship's Bottom and Related Items	1 Jul 20
10	UR M80	New	May 2019	Requirements for AC Generating Sets	1 Jul 20
11	UR Z7	Rev.28	May 2019	Hull Classification Surveys	1 Jul 20
12	UR Z7.2	Rev.8	May 2019	Hull Surveys for Liquefied Gas Carriers	1 Jul 20
13	UR Z10.1	Rev.24	May 2019	Hull Surveys of Oil Tankers	1 Jul 20
14	UR Z10.2	Rev.36	May 2019	Hull Surveys of Bulk Carriers	1 Jul 20
15	UR Z10.3	Rev.19	May 2019	Hull Surveys of Chemical Tanker	1 Jul 20
16	UR Z10.4	Rev.16	May 2019	Hull Surveys of Double Hull Oil Tankers	1 Jul 20
17	UR Z10.5	Rev.19	May 2019	Hull Surveys of Double Skin Bulk Carriers	1 Jul 20
18	UR Z15	Rev.3	May 2019	Hull, Structure, Equipment and Machinery Surveys of Mobile Offshore Drilling Units	1 Jul 20
19	UR Z20	Rev.2	May 2019	Planned Maintenance Scheme (PMS) for Machinery	1 Jul 20
20	UR Z1	Rev.7	May 2019	Annual and Intermediate Classification Survey Coverage of IMO Resolution A.1120(30)	-

Index	Resolution no.	Revision	Adoption	Title	Implemention Date
21	UR A3	Rev.1	Jun 2019	Anchor Windlass Design and Testing	1 Jul 20
22	UR Z7.1	Rev.15	Jun 2019	Hull Surveys for General Dry Cargo Ships	1 Jul 20
23	UR M59	Deleted	Jun 2019	Control and Safety Systems for Dual Fuel Diesel Engines	-
24	UR W23	Corr.1	Jun 2019	Approval of Welding Consumables for High Strength Steels for Welded Structures	-
25	UR W35	New	Jun 2019	Requirements for NDT Suppliers	1 Jul 20
26	UR S2	Rev.2	Jun 2019	Definition of Ship's Length L and of Block Coefficient Cb	1 Jul 20
27	UR S5	Corr.1	Jun 2019	Calculation of Midship Section Moduli for Conventional Ship for Ship's Scantlings	1 Jul 20
28	UR S11	Rev.9	Jun 2019	Longitudinal Strength Standard	1 Jul 20
29	UR M53	Rev.4	Aug 2019	Calculations for I.C. Engine Crankshafts	1 Jan 21
30	UR M77	Rev.1	Aug 2019	Storage and Use of SCR Reductants	1 Jan 21
31	UR S10	Rev.6	Sep 2019	Rudders, Sole Pieces and Rudder Horns	1 Jan 21
32	UR M52	Rev.2	Nov 2019	Length of Aft Stern Bush Bearing	1 Jan 21
33	UR S33	Rev.2	Dec 2019	Requirements for Use of Extremely Thick Steel Plates in Container Ships	1 Jan 21
34	UR W31	Rev.2	Dec 2019	YP47 Steels and Brittle Crack Arrest Steels	1 Jan 21
35	UR E25	Rev.1	Dec 2019	Failure Detection and Response of All Types of Steering Control Systems	1 Jan 21
36	UR G3	Rev.7	Dec 2019	Liquefied Gas Cargo and Process Piping	1 Jan 21
37	UR I2	Rev.4	Dec 2019	Structural Requirements for Polar Class Ships	1 Jan 21
38	UR W33	New	Dec 2019	Non-destructive Testing of Ship Hull Steel Welds	1 Jul 21
39	UR W34	New	Dec 2019	Advanced Non-destructive Testing of Materials and Welds	1 Jul 21

Summary of New/Revisions to IACS Unified Requirements published in 2019

1. UR M52 (Rev.1 Jan 2019)

UR M52 provides the requirements for length of aft stern bush bearing considering oil lubricated bearings and water lubricated bearings. This revision has amended the requirements for water lubricated bearings.

2. UR M35 (Rev.8 Jan 2019)

UR M35 provides requirements for alarms, remote indications and safeguards for main reciprocating I.C. engines installed in unattended machinery spaces. This revision has aligned UR M35 with UR M10.8 regarding the use of engine bearing temperature monitors or equivalent devices instead of an oil mist detection arrangement to protect the engine crankcases.

3. UR M72 (Rev 2 Jan 2019)

UR M72 provides requirements for the certification of engine components. This revision has clarified the certificate definitions and the requirements applying to high pressure fuel systems. It also contained changes related to testing requirements and minor corrections.

4. UR S17 (Rev.10 Mar 2019)

UR S17 (Rev 7 & above) provides requirements for longitudinal strength of hull girders in flooded condition for non-CSR bulk carriers of 150 m in length and upwards. This revision has clarified that UR S17 is applicable to self-unloading bulk carrier only if the unloading system maintains watertightness during seagoing operations.

5. UR S18 (Rev.10 Mar 2019)

UR S18 (Rev 7 & above) provides requirements for scantlings of corrugated transverse watertight bulkheads in non-CSR bulk carriers of 150 m in length and upwards, considering hold flooding. This revision has clarified that UR S18 is applicable to self-unloading bulk carriers only if the unloading system maintains watertightness during seagoing operations.

6. UR S21A (Corr.2 Mar 2019)

UR S21A provides requirements for scantlings of hatch covers, hatch coamings and closing arrangements of cargo holds of all ships except bulk carriers, self-unloading bulk carriers, ore carriers and combination carriers. This corrigendum clarified that UR S21A is not applicable to self-unloading bulk carriers.

7. UR S30 (Corr.1 Mar 2019)

UR S30 provides requirements for cargo hatch cover securing arrangements for bulk carriers not built in accordance with UR S21. This corrigendum clarified that UR S30 is not applicable to self-unloading bulk carriers.

8. UR Z17 (Rev.14 Mar 2019)

UR Z17 sets minimum requirements for approval and certification of service suppliers and is applicable to both initial and renewal audits. This revision aligned UR Z17 with the requirements of Resolution MSC. 402(96).

9. UR Z3 (Rev.8 Apr 2019)

UR Z3 provides requirements for periodical survey of the outside of the ship's bottom and related Items. This revision addressed the inconsistency between UR Z7 2.2.2.1 and UR Z3.1.6 relevant to the dry dock survey requirements for liquefied gas carriers.

10. UR M80 (New May 2019)

UR M80 introduced requirements for AC generating sets (i.e. reciprocating internal combustion engines, alternators and couplings in addition to those stated in UR E13, UR M3, UR M51, and UR M53.

11. UR Z7 (Rev. 28 May 2019)

12. UR Z7.2 (Rev. 8 May 2019)

13. UR Z10.1 (Rev.24 May 2019)

14. UR Z10.2 (Rev. 36 May 2019)

15. UR Z10.3 (Rev.19 May 2019)

16. UR Z10.4 (Rev. 16 May 2019)

17. UR Z10.5 (Rev. 19 May 2019)

18. UR Z15 (Rev. 3 May 2019)

19. UR Z20 (Rev. 2 May 2019)

Publications from 11-19 were revised to harmonise the terms 'Recommendation' and 'Condition of class' with only the term 'Condition of class' being retained. Additionally, publications 11 and 12 were revised to use the harmonised terms of ballast tanks for their survey requirements.

20. UR Z1 (Rev. 7 May 2019)

UR Z1 identifies the annual and intermediate survey requirements of HSSC guidelines, which are to be covered by classification surveys. This revision updated the survey items following the publication of IMO Res. A. 1120(30) Survey Guidelines Under the Harmonised System of Survey and Certification, (HSSC) 2017.

21. UR A3 (Rev.1 June 2019)

UR A3 provides general requirements, application scope, definitions, plans and documents, material, design requirements and test requirements. This revision provided additional exceptions for the selection of welding consumables and aligned marking in UR A3 with that of ISO4568:2006

22. UR Z7.1 (Rev. 15 June 2019)

UR Z7.1 provides the requirements of hull surveys for general dry cargo ships and is applicable to all self-propelled general dry cargo ships of 500 GT and above except for few cargo types listed in the UR. This revision harmonised the terms 'Recommendation' and 'Condition of class' with only the term 'Condition of class' being retained and harmonised terms of ballast tanks for their survey requirements. Furthermore, the references to SOLAS regulation II-1/23-3 were replaced by regulation II- 1/25.

23. UR M59 (Del June 2019)

24. UR W23 (Corr.1 June 2019)

UR W23 supplements UR W17 and gives conditions of approval and inspection of welding consumables used for high strength steels for welded structures according to UR W16. This corrigendum clarified that for grade Y89 and Y96, where the design requirements permit undermatching weld joints, then welding consumables within the scope of this UR may be considered.

25. UR W35 (New June 2019)

UR W35 was developed to provide requirements for non-destructive testing (NDT) suppliers. These Unified Requirements ensure that a supplier uses appropriate procedures, has qualified and certified personnel and has implemented written procedures for training, experience, education, examination, certification, performance, application, control, verification and reporting of NDT.

26. UR S2 (Rev.2 June 2019)

UR S2 provides the definition of ship's length L and of block coefficient Cb. This revision has aligned the length definition in UR S2 with that of CSR BC & OT to avoid discrepancy between IACS resolutions and CSR.

Summary of New/Revisions to IACS Unified Requirements published in 2019

27. UR S5 (Corr.1 June 2019)

UR S5 provides the calculation of midship section moduli for conventional ships for ship's scantlings. This Corrigendum has corrected a measuring unit of angle.

28. UR S11 (Rev.9 June 2019)

UR S11 provides the requirements for longitudinal strength and is applicable to steel ships of length 90 m and above. This revision has removed references to UR S25 (Deleted) and containerships which are covered by UR S11A.

29. UR M53 (Rev.4 Aug 2019)

UR M53 provides the requirements for the design of crankshafts to be applied to I.C. engines for propulsion and auxiliary purposes, where the engines are capable of continuous operation at their rated power when running at rated speed. This revision amended the formula for the calculation of the acceptability factor (Q) for crankpin oil bore in Appendix IV, paragraph 4.3.

30. UR M77 (Rev.1 Aug 2019)

UR M77 provides the requirements for storage and use of SCR reductants which are typically carried on board in bulk quantities. This revision clarified the requirements in paragraphs 2.4, 2.6, 2.8 and 2.10 for uniform implementation.

31. UR S10 (Rev.6 Sep 2019)

UR S10 provides the requirements for rudders, sole pieces and rudder horns. This revision has updated the requirements based on feedback received from industry and members' practical experience.

32. UR M52 (Rev.2 Nov 2019)

UR M52 provides the requirements for length of aft stern bush bearing in consideration of oil lubricated bearings and water lubricated bearings. This revision introduced requirements for grease lubricated bearings and for the type approval of synthetic materials for oil lubricated stern tube bearings.

33. UR S33 (Rev.2 Dec 2019)

UR S33 provides the requirements for the use of extremely thick steel plates in container ships and also provides measures for the prevention of brittle fracture. This revision provided the conditions of application of the BCA steels on container ships for the deck and the hatch coaming side in consistency with the updated UR W31.

34. UR W31 (Rev.2 Dec 2019)

UR W31 defines the requirements on YP47 steels and brittle crack arrest steels as required by UR S33. This revision dealt with the properties for brittle crack arrest steels referred to in UR S33 with thickness exceeding 80 mm and up to 100 mm. Requirements for testing and approval procedures had also been revised.

35. UR E25 (Rev.1 Dec 2019)

UR 25 deals with the failure detection and response of all types of steering control systems. The UR provides more details on which failures shall be alarmed and provides the operator with sufficient information to decide what action is required for the different failure scenarios. This revision has clarified the intention and the requirements of 2.1 Paragraph.

36. UR G3 (Rev.7 Dec 2019)

UR G3 provides general principles for approval and survey of the relevant items of liquefied gas tankers for classification purposes. These requirements are applicable to liquefied gas cargo and process piping including cargo gas piping and exhaust lines of safety valves or similar piping. This revision introduced/amended the requirements in accordance with the new IGC Code (Res. MSC.370(93)).

37. UR I2 (Rev.4 Dec 2019)

UR I2 provides the structural requirements for polar class ships. This revision introduced the definitions for the ship length (LUI), moulded breadth (BUI) and the displacement (DUI) measured at the upper ice waterline (UIWL). Additionally, table 8 had been updated in accordance with UR W11.

38. UR W33 (New Dec 2019)

UR W33 introduced minimum requirements on the methods and quality levels that are to be adopted for non-destructive testing (NDT) of ship hull structure steel welds during new building.

39. UR W34 (New Dec 2019)

UR W34 introduced minimum requirements on the methods and quality levels that are to be adopted for advanced non-destructive testing (ANDT) of materials and welds during new building of ships.

Summary of New/Revisions to IACS Procedural Requirements published in 2019

New Revised Corrigenda Deleted/Withdrawn

Index	Resolution no.	Revision	Adoption	Title	Implemention Date
1	PR 1A	Rev.6	Jan 2019	Procedure for Transfer of Class	1 Jul 19
2	PR 1B	Rev.3	Jan 2019	Procedure for Adding, Maintaining or Withdrawing Double or Dual Class	1 Jul 19
3	PR 1D	Rev.1	Jan 2019	Procedure for Class Entry of Ships not subject o PR 1A or PR 1B	1 Jul 19
4	PR 1 ANNEX	Rev.3	Jan 2019	Annexes to PR 1A, PR 1B and PR 1C	1 Jul 19
5	PR 10	Rev.3	Mar 2019	Procedure for the Selection, Training, Qualification and Authorisation of Marine Management Systems Auditors	1 APR 19
6	PR 38	Rev.2	Mar 2019	Procedure for Calculation and Verification of the Energy Efficiency Design Index (EEDI)	1 Jul 19
7	PR 40	Rev.1	APR 2019	Procedural Requirements for MLC, 2006 Certification	1 May 19
8	PR 24	Rev.2	May 2019	Procedural Requirements for ISPS Code Certification	1 Jul 19
9	PR 1 ANNEX	Rev.4	May 2019	Annexes to PR 1A, PR 1B and PR 1C	1 Jul 20
10	PR 1A	Rev.7	May 2019	Procedure for Transfer of Class	1 Jul 20
11	PR 1B	Corr.1	May 2019	Procedure for Adding, Maintaining or Withdrawing Double or Dual Class	-
12	PR 1B	Rev.4	May 2019	Procedure for Adding, Maintaining or Withdrawing Double or Dual Class	1 Jul 20
13	PR 1C	Rev.6	May 2019	Procedure for Suspension and Reinstatement or Withdrawal of Class in Case of Surveys or Conditions of Class Going Overdue	1 Jul 20
14	PR 1D	Rev.2	May 2019	Procedure for Class Entry of Ships not subject to PR 1A or PR 1B	1 Jul 20
15	PR 3	Rev.2	May 2019	Transparency of Classification and Statutory Information	1 Jul 20
16	PR 12	Rev.3	May 2019	Procedure for Statutory Certification at Change of Class without Change of Flag	1 Jul 20
17	PR 20	Rev.3	May 2019	Procedural Requirement for certain ESP Surveys	1 Jul 20
18	PR 35	Rev.1	May 2019	Procedure for Imposing and Clearing Conditions of Class	1 Jul 20
19	PR 16	Rev.1	May 2019	Procedure for providing Lists of Classed Ships to Equasis	1 Jul 20
20	PR 7	Rev.2	Aug 2019	Procedure for the Training and Qualification of Survey and Plan Approval Staff	1 Jan 20
21	PR 1B	Rev.5	Nov 2019	Procedure for Adding, Maintaining or Withdrawing Double or Dual Class	1 Jul 20

Summary of New/Revisions to IACS Procedural Requirements published in 2019

1. PR 1A (Rev.6 Jan 2019)

PR 1A contains Procedures and requirements pertaining to transfer of class from one society to another society.
This revision introduced the definition for 'compliant' ship and alternative survey requirements for internal inspections to cargo tanks of chemical carriers.

2. PR 1B (Rev.3 Jan 2019)

PR 1B contains Procedures and requirements pertaining to adding, maintaining or withdrawing a double or dual class. This revision introduced the definition for 'compliant' ship.

3. PR 1D (Rev.1 Jan 2019)

PR 1D contains Procedures and requirements pertaining to class entry of ships not subject to PR 1A or PR 1B. This revision introduced the definition for 'compliant' ship and also stipulated that obligations of this Procedure apply to gaining classification societies which are subject to verification of compliance with QSCS, for the class entry of non-compliant vessels.

4. PR 1 ANNEX (Rev.3 Jan 2019)

PR 1Annex contains reporting forms, harmonisation of reporting, review of vessel's records and contact points for societies.
This revision, taking into account changes to PR 1A and PR 1B, introduced an additional data box for "Confirmation of vessel's compliance" in Form L.

5. PR 10 (Rev.3 Mar 2019)

PR 10 contains requirements for the selection, training, qualification and authorisation of marine management systems auditors responsible for verifying compliance with the ISM and ISPS Codes. This revision has introduced changes related to competency of an auditor, numbers of necessary Practical training and equivalent learning methods to achieve compliance with IMO Res. A.1118(30).

6. PR 38 (Rev.2 Mar 2019)

PR 38 contains the Procedure for conducting the survey and certification of EEDI in accordance with 2014 Guidelines on Survey and Certification of the Energy Efficiency Design Index (EEDI), as amended. This revision clarified the application of EPT (Electric Power Table) to address the consistent implementation of IMO Guidelines in aspect of calculation of PAE value and the use of EPT.

7. PR 40 (Rev.1 APR 2019)

PR 40 contains the requirements for the planning, Preparation, conduct, reporting and follow-up of MLC inspections and for the issuance of the corresponding Maritime Labour Certificate (MLC) and Declaration of Maritime Labour Compliance (DMLC). This revision aligned PR 40 with the 2016 amendments to the Maritime Labour Conventions, 2006.

8. PR 24 (Rev.2 May 2019)

PR 24 establishes Procedural requirements for the planning, Preparation, conduct, reporting and follow-up of ISPS audits and the issue, endorsement and withdrawal of ISPS certificates. This Revision amended certification scenarios, eliminated ambiguous Provisions and allowed new techniques of managing amendments to Previously approved documents.

9. PR 1 ANNEX (Rev. 4 May 2019)

PR 1 Annex contains reporting forms, harmonisation of reporting, review of vessel's records and contact points for societies. This revision harmonised the terms 'Recommendation' and 'Condition of class' with only the term 'Condition of class' being retained.

10. PR 1A (Rev. 7 May 2019)

PR 1A contains Procedures and requirements pertaining to transfer of class from one society to another society. This revision harmonised the terms 'Recommendation' and 'Condition of class' with only the term 'Condition of class' being retained.

Summary of New/Revisions to IACS Procedural Requirements published in 2019

11. PR 1B (Rev.3 Corr.1 May 2019)

PR 1B contains Procedures and requirements pertaining to adding, maintaining or withdrawing a double or dual class. This corrigendum replaced the term "losing society" with "first society" in the second paragraph of "application".

12. PR 1B (Rev.4 May 2019)

PR 1B contains Procedures and requirements pertaining to adding, maintaining or withdrawing a double or dual class. This revision harmonised the terms 'Recommendation' and 'Condition of class' with only the term 'Condition of class' being retained.

13. PR 1C (Rev. 6 May 2019)

PR 1C contains Procedures and requirements pertaining to suspension and reinstatement or withdrawal of class. This revision harmonised the terms 'Recommendation' and 'Condition of class' with only the term 'Condition of class' being retained. Additionally, paragraph A.1.8 related to suspension of class was revised.

14. PR 1D (Rev. 2 May 2019)

PR 1D contains Procedures and requirements pertaining to class entry of ships not subject to PR 1A or PR 1B. This revision harmonised the terms 'Recommendation' and 'Condition of class' with only the term 'Condition of class' being retained. Additionally, paragraphs B.1.1, B.1.2 and B.2.3 related to the submission of plans were revised.

15. PR 3 (Rev.2 May 2019)

PR 3 ensures transparency of classification and statutory information. This revision harmonised the terms of 'Recommendation' and 'Condition of class' with only the term 'Condition of class' being retained.

16. PR 12 (Rev. 3 May 2019)

PR 12 contains Procedures and requirements for statutory surveys and certification at change of class without change of flag. This revision harmonised the terms of 'Recommendation' and 'Condition of class' with only the term 'Condition of class' being retained.

17. PR 20 (Rev.3 May 2019)

PR 20 applies to surveys of hull structures and piping systems in the way of cargo holds and/or cargo tanks, cofferdams, cargo pump rooms, pipe tunnels, void spaces, within the cargo length area and all ballast tanks. The objective of this PR is to improve the quality of surveys. This revision harmonised the terms of 'Recommendation' and 'Condition of class' with only the term 'Condition of class' being retained.

18. PR 35 (Rev.1 May 2019)

PR 35 contains Procedures for imposing, clearing and controlling "Conditions of Class". This revision harmonised the terms of 'Recommendation' and 'Condition of class' with only the term 'Condition of class' being retained.

19. PR 16 (Rev.1 May 2019)

PR 16 contains Procedures for Providing lists of classed ships and changes in class status to Equasis. This revision harmonised the terms of 'Recommendation' and 'Condition of class' with only the term 'Condition of class' being retained.

20. PR 7 (Rev.2 Aug 2019)

PR 7 contains training and qualification requirements for survey and plan approval staff in accordance with the requirements of the RO Code, as amended, and ISO 9001:2015 and ISO/IEC 17020:2012 standards. Rev.2 has replaced references to A.739(18) and/or A.789(19) with the RO Code and updated the references to the HSSC Guidelines.

21. PR 1B (Rev.5 Nov 2019)

PR 1B contains Procedures and requirements pertaining to adding, maintaining or withdrawing a double or dual class. This revision introduced a requirement that dual class agreement adopted by the two societies shall clearly define the scope of work of each society in the various applicable situations covered.

Summary of New/Revisions to IACS Unified Interpretations published in 2019

New Revised Corrigenda Deleted/Withdrawn

Index	Resolution no.	Revision	Adoption	Title	Implemention Date
1	UI GC24	Rev.1	Feb 2019	Fire Test for Emergency Shutdown Valves	1 Jan 20
2	UI GF18	New	Feb 2019	Level Indicator in the Bilge Well of Tank Connection Spaces of Independent Liquefied Gas Storage Tanks	1 Jan 20
3	UI SC6	Rev.1	Mar 2019	Emergency Source of Electrical Power on Gas Carriers and Chemical Tankers	Refer UI
4	UI SC190	Rev.1	Apr 2019	IACS Unified Interpretations (UI) SC 190 for Application of SOLAS Regulation II-1/3-6 (Res MSC.134(76)) and Technical Provisions on Permanent Means of Access (Res MSC.133(76))	1 Jul 19
5	UI SC191	Rev.8	Apr 2019	IACS Unified Interpretations (UI) SC 191 for the Application of Amended SOLAS Regulation II-1/3-6 (resolution MSC.151(78)) and Revised Technical Provisions for Means of Access for Inspections (Res MSC.158(78))	1 Jul 19
6	UI GC20	New	Apr 2019	Tee welds in type A or type B Independent Tanks	1 Jul 20
7	UI GC21	New	Apr 2019	Welds of Type C Independent Bi-lobe Tank with Centreline Bulkhead	1 Jul 20
8	UI GC29	New	May 2019	Integrated Systems	1 Jul 20
9	UI GC25	Rev.1	May 2019	Cargo Piping Insulation	1 Jul 20
10	UI GC13	Rev.2	May 2019	Examination Before and After the First Loaded Voyage	1 Jul 20
11	UI GC22	New	Jun 2019	Water Spray System	1 Jul 19
12	UI SC289	Withdrawn	Jul 2019	Separation Arrangements between Inert Gas Piping and Cargo Tanks	-
13	UI MPC130	New	Nov 2019	NOx Technical Code 2008, Chapter 2, Paragraph 2.2.5.1	1 Jul 20
14	UI MPC112	Rev.1	Nov 2019	Resolution MEPC. 291(71), Paragraph 3.2.8	1 Jul 20
15	UI MPC115	Rev.1	Nov 2019	Resolution MEPC.291(71), Paragraph 3.2.11	1 Jul 20
16	UI MPC116	Rev.1	Nov 2019	Resolution MEPC.291(71), Paragraph 3.2.12	1 Jul 20
17	UI MPC30	Rev.1	Nov 2019	NOx Technical Code 2008, Table 3 – Symbols and Subscripts for Terms and Variables	1 Jul 20
18	UI MPC40	Rev.1	Nov 2019	NOx Technical Code 2008, Chapter 2, Paragraph 2.3.9	1 Jul 20
19	UI MPC45	Rev.1	Nov 2019	NOx Technical Code 2008, Chapter 2, Paragraph 2.4.1.7	1 Jul 20
20	UI MPC53	Rev.1	Nov 2019	NOx Technical Code 2008, Chapter 4, Paragraphs 4.1.1 to 4.1.4	1 Jul 20
21	UI MPC54	Rev.1	Nov 2019	NOx Technical Code 2008, Chapter 4, Paragraphs 4.3.1 and 4.4.1	1 Jul 20
22	UI MPC58	Rev.1	Nov 2019	NOx Technical Code 2008, Chapter 4, Paragraphs 4.3.10.2 and 4.3.10.3	1 Jul 20
23	UI MPC77	Rev.1	Nov 2019	NOx Technical Code 2008, Chapter 6, Paragraph 6.2.1.2	1 Jul 20

Summary of New/Revisions to IACS Unified Interpretations published in 2019

Index	Resolution no.	Revision	Adoption	Title	Implemention Date
24	UI MPC33	Rev.2	Nov 2019	NOx Technical Code 2008, Chapter 2, Paragraph 2.2.4.1	1 Jul 20
25	UI MPC51	Rev.2	Nov 2019	NOx Technical Code 2008, Chapter 3, Paragraph 3.2.1	1 Jul 20
26	UI MPC59	Rev.1	Nov 2019	NOx Technical Code 2008, Chapter 4, Paragraphs 4.4.6.2 and 4.4.6.3	1 Jul 20
27	UI MPC74	Rev.1	Nov 2019	NOx Technical Code 2008, Chapter 5, Paragraph 5.10.1	1 Jul 20
28	UI SC123	Rev.3 reinstated	Nov 2019	Machinery Installations - Service Tank Arrangements Reg. II-1/26.11	-
29	UI GC23	New Corr.1	Dec 2019	Cargo Tank Structure Heating Arrangement Power Supply	-
30	UI SC209	Rev.1	Dec 2019	SOLAS XII/6.4.3 in terms of redundancy of stiffening structural members for vessels not designed according to CSR	1 Jul 20
31	UI MODU3	Withdrawn	Dec 2019	Selective disconnection or shutdown and equipment operable after an emergency shutdown	-
32	UI GC28	Rev.1	Dec 2019	Guidance for sizing pressure relief systems for interbarrier spaces	1 Jan 20
33	UI SC212	Corr.3	Dec 2019	Shipboard fittings and supporting hull structures associated with towing and mooring on conventional vessels	-
34	UI SC153	Corr.1	Dec 2019	Rudder stock diameter	-
35	UI GC25	Corr.1	Dec 2019	Cargo piping insulation	-
36	UI GC26	Corr.1	Dec 2019	Type testing requirements for valves	-
37	UI GC27	Corr.1	Dec 2019	Level indicators for cargo tanks	-
38	UI GC29	Corr.1	Dec 2019	Integrated systems	-
39	UI MPC105	Deleted	Nov 2019	Gaseous emissions calculation of marine diesel engines fitted with SCR systems.	-
40	UI MPC108	Deleted	Nov 2019	Resolution MEPC.198(62), Section 3.2.1.3	-
41	UI MPC109	Deleted	Nov 2019	Resolution MEPC.198(62), Section 3.2.1.4	-
42	UI MPC110	Deleted	Nov 2019	Resolution MEPC.198(62), Section 3.2.1.6	-
43	UI MPC111	Deleted	Nov 2019	Resolution MEPC.198(62), Section 3.2.1.7	-
44	UI MPC113	Deleted	Nov 2019	Resolution MEPC.198(62), Section 3.2.1.9	-
45	UI MPC114	Deleted	Nov 2019	Resolution MEPC.198(62), Section 3.2.1.10	-
46	UI MPC117	Deleted	Nov 2019	Resolution MEPC.198(62), Section 3.5.2	-
47	UI MPC118	Deleted	Nov 2019	Resolution MEPC.198(62), Section 4.1	-
48	UI MPC120	Deleted	Nov 2019	Resolution MEPC.198(62), Section 5.2.2	-
49	UI MPC122	Deleted	Nov 2019	Resolution MEPC.198(62), Section 6.3.2.1.2	-
50	UI MPC123	Deleted	Nov 2019	Resolution MEPC.198(62), Section 6.3.2.1.5	-

Summary of New/Revisions to IACS Unified Interpretations published in 2019

Index	Resolution no.	Revision	Adoption	Title	Implemention Date
51	UI MPC126	Deleted	Nov 2019	NOx Technical Code 2008, Chapter 4, Paragraph 4.4.6.2	-
52	UI MPC31	Deleted	Nov 2019	1997 NOx Technical Code, Chapter 1.2.1	-
53	UI MPC34	Deleted	Nov 2019	1997 NOx Technical Code, Chapter 2.2.5	-
54	UI MPC35	Deleted	Nov 2019	1997 NOx Technical Code, Chapter 2.2.8	-
55	UI MPC36	Deleted	Nov 2019	1997 NOx Technical Code, Chapter 2.2.9	-
56	UI MPC37	Deleted	Nov 2019	1997 NOx Technical Code, Chapter 2.3.4	-
57	UI MPC38	Deleted	Nov 2019	1997 NOx Technical Code, Chapter 2.3.5	-
58	UI MPC39	Deleted	Nov 2019	1997 NOx Technical Code, Chapter 2.3.6	-
59	UI MPC41	Deleted	Nov 2019	1997 NOx Technical Code, Chapter 2.3.12	-
60	UI MPC42	Deleted	Nov 2019	1997 NOx Technical Code, Chapter 2.3.13	-
61	UI MPC43	Deleted	Nov 2019	1997 NOx Technical Code, Chapter 2.4.1.1	-
62	UI MPC44	Deleted	Nov 2019	1997 NOx Technical Code, Chapter 2.4.1.5	-
63	UI MPC46	Deleted	Nov 2019	1997 NOx Technical Code, Chapter 2.4.2	-
64	UI MPC47	Deleted	Nov 2019	1997 NOx Technical Code, Chapter 2.4.4.3	-
65	UI MPC48	Deleted	Nov 2019	1997 NOx Technical Code, Chapter 2.4.5	-
66	UI MPC49	Deleted	Nov 2019	1997 NOx Technical Code, Chapter 3.1.1	-
67	UI MPC50	Deleted	Nov 2019	1997 NOx Technical Code, Chapter 3.1.3	-
68	UI MPC52	Deleted	Nov 2019	1997 NOx Technical Code, Chapter 3.2.3	-
69	UI MPC55	Deleted	Nov 2019	1997 NOx Technical Code, Chapter 4.3.7, 4.3.10.6 and 4.4.8	-
70	UI MPC56	Deleted	Nov 2019	1997 NOx Technical Code, Chapter 4.3.9.1 and 4.4.7	-
71	UI MPC57	Deleted	Nov 2019	1997 NOx Technical Code, Chapter 4.3.9.2	-
72	UI MPC60	Deleted	Nov 2019	1997 NOx Technical Code, Chapter 5.2.2.2	-
73	UI MPC61	Deleted	Nov 2019	1997 NOx Technical Code, Chapter 5.2.5	-
74	UI MPC62	Deleted	Nov 2019	1997 NOx Technical Code, Chapter 3.1.3	-
75	UI MPC63	Deleted	Nov 2019	1997 NOx Technical Code, Chapter 5.5.3	-
76	UI MPC64	Deleted	Nov 2019	1997 NOx Technical Code, Chapter 5.6	-
77	UI MPC65	Deleted	Nov 2019	1997 NOx Technical Code, Chapter 5.9.1.2	-
78	UI MPC66	Deleted	Nov 2019	1997 NOx Technical Code, Chapter 5.9.2	-

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Index	Resolution no.	Revision	Adoption	Title	Implemention Date
79	UI MPC67	Deleted	Nov 2019	R1997 NOx Technical Code, Chapter 5.9.2.3	-
80	UI MPC68	Deleted	Nov 2019	1997 NOx Technical Code, Chapter 5.9.3.1	-
81	UI MPC69	Deleted	Nov 2019	1997 NOx Technical Code, Chapter 5.9.3.2	-
82	UI MPC70	Deleted	Nov 2019	1997 NOx Technical Code, Chapter 5.9.6.1	-
83	UI MPC71	Deleted	Nov 2019	1997 NOx Technical Code, Chapter 5.9.6.2	-
84	UI MPC72	Deleted	Nov 2019	1997 NOx Technical Code, Chapter 5.9.7	-
85	UI MPC73	Deleted	Nov 2019	1997 NOx Technical Code, Chapter 5.9.9	-
86	UI MPC75	Deleted	Nov 2019	1997 NOx Technical Code, Chapter 5.11	-
87	UI MPC76	Deleted	Nov 2019	1997 NOx Technical Code, Chapter 5.12.4.1	-
88	UI MPC78	Deleted	Nov 2019	1997 NOx Technical Code, Chapter 6.2.3.4.2	-
89	UI MPC79	Deleted	Nov 2019	1997 NOx Technical Code, Chapter 6.2.3.5	-
90	UI MPC80	Deleted	Nov 2019	Appendix 4 (Chapter 5 of the 1997 NOx Technical Code), 1.1	-
91	UI MPC81	Deleted	Nov 2019	Appendix 4 (Chapter 5 of the 1997 NOx Technical Code), 8.1	-
92	UI PASSUB1	Deleted	Dec 2019	Viewports in Passenger Submersible Craft	-

1. UI GC24 (Rev.1 Feb 2019)

UI GC24 provides interpretation for emergency shutdown valves mentioned in paragraph 5.13.1.1.4 of the IGC Code (MSC.370(93)). This revision aligned UI GC24 with the text agreed by CCC5 (CCC 5/13, Para 8.36).

2. UI GF18 (New Feb 2019)

UI GF18 provides interpretation of the level indicator in the bilge well of tank connection spaces of independent liquefied gas storage tanks mentioned in Paragraph 15.3.2 of the IGF Code (MSC Res.391(95)), allowing the use of level switches.

3. UI SC6 (Rev.1 Mar 2019)

UI SC6 provides interpretation for the emergency source of electrical power on gas carriers and chemical tankers mentioned in the regulation 43.6, Chapter II-1 of SOLAS. This revision aligned UI SC6 with the IGC Code (MSC.370(93)).

4. UI SC190 (Rev.1 Apr 2019)

UI SC190 provides interpretation for the application of SOLAS Regulation II-1/3-6 (Res MSC.134(76)) and technical provisions on permanent means of access (Res MSC.133(76)). In this revision, the reference to “Resolution A.744(18)” was replaced with “the ESP Code”.

5. UI SC191 (Rev. 8 Apr 2019)

UI SC191 provides interpretation for the application of amended SOLAS regulation II- 1/3-6 (Resolution MSC.151(78)) and revised technical provisions for means of access for inspections (Resolution MSC.158(78)). In this revision, the reference to “Resolution A.1049(27)” was replaced with “the ESP Code, as amended”.

6. UI GC20 (New Apr 2019)

UI GC20 provides interpretation for "For dome-to-shell connections only" in Regulation 4.20.1.1 of the IGC Code (MSC.370(93)) regarding tank construction weld joints, such as the utilisation of tee welds for localised constructions and tank corners which shall be made of bent plating aligned with the tank surfaces and connected with in-plane welds.

7. UI GC21 (New Apr 2019)

UI GC21 provides interpretation for "Other edge preparations" in Regulation 4.20.1.2 of the IGC Code MSC.370(93)) regarding tank construction weld joints, such as the utilisation of cruciform full penetration welded joints in a bi-lobe tank with centreline bulkhead.

8. UI GC29 (New May 2019)

UI GC29 provides interpretation for "integrated system" in paragraph 13.9.3 of the IGC Code (MSC.370(93)).

9. UI GC25 (Rev.1 May 2019)

UI GC25 provides interpretation for 'a thermal insulation system as required to minimise heat leak into the cargo during transfer operations' and 'cargo piping systems shall be provided with a thermal insulation system as required ... cold surfaces' in paragraph 5.12.3.1 of the IGC Code (MSC.370(93)). This UI was revised following the comments raised by CCC5 (CCC5/13 para 8.29 to 8.31).

10. UI GC13 (Rev.2 May 2019)

UR GC13 provides interpretation for paragraphs 4.10.14 and 4.10.16 of the IGC Code, as amended. This revision harmonised the terms of 'Recommendation' and 'Condition of class' with only the term 'Condition of class' being retained.

11. UI GC22 (New June 2019)

UI GC22 provides interpretation for paragraphs 11.3.1 & 11.3.3 of the new IGF Code (MSC.370(93)). UI GC22 (New Apr 2018) was replaced with UI GC22 (New June 2019) to align the UI GC22 with the text agreed by CCC5 (CCC5/13, Para 8.24).

12. UI SC289 (Withdrawn July 2019)

UI SC289 (New Dec 2018) was withdrawn on 8 July 2019 prior to coming into force on 1 Jan 2020.

13. UI MPC130 (New Nov 2019)

UI MPC130 provides interpretation that for the purpose of the first sentence of Regulation 2.2.5.1 of the NOx Technical Code 2008, a NOx-reducing device (e.g. SCR) is recognised as a component of the engine and as such the SCR will not be covered by MARPOL Annex VI, Regulation 4 - Equivalents.

14. UI MPC112 (Rev.1 Nov 2019)

UI MPC112 provides interpretation of terms contained in MEPC.291(71), Paragraph 3.2.8, in particular NOx measurement devices incorporated in a SCR feedback or feed forward reductant control system. This UI was updated based on amendments to the NOx Technical Code and on the adoption of the 2017 SCR Guidelines (Res. MEPC.291(71)).

15. UI MPC115 (Rev.1 Nov 2019)

UI MPC115 provides interpretation of terms contained in MEPC.291(71), Paragraph 3.2.11. This UI was updated based on amendments to the NOx Technical Code and on the adoption of the 2017 SCR Guidelines (Res. MEPC.291(71)).

16. UI MPC116 (Rev.1 Nov 2019)

UI MPC116 provides interpretation of terms contained in MEPC.291(71), Paragraph 3.2.12. This UI was updated based on amendments to the NOx Technical Code and on the adoption of the 2017 SCR Guidelines (Res. MEPC.291(71)).

17. UI MPC30 (Rev.1 Nov 2019)

UI MPC30 provides interpretation of terms contained in Table 3 - Symbols and subscripts for terms and variables of the Introduction to the NOx Technical Code 2008. This UI was updated based on amendments to the NOx Technical Code and on the adoption of the 2017 SCR Guidelines (Res. MEPC.291(71)).

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18. UI MPC40 (Rev.1 Nov 2019)

UI MPC40 provides interpretation of the procedure for certification of an engine if any adjustment or modification is made which is outside the approval limits documented in the technical file, as a condition for the engine IAPP certificate. This UI was updated based on amendments to the NOx Technical Code 2008 adopted by Res.MEPC.177(58).

19. UI MPC45 (Rev.1 Nov 2019)

UI MPC45 provides interpretation of on-board NOx verification procedures and information about spare parts/components used in the engine. This UI was updated based on amendments to the NOx Technical Code 2008 adopted by Res.MEPC.177(58).

20. UI MPC53 (Rev.1 Nov 2019)

UI MPC53 provides interpretation regarding the application of the engine family and engine group concept according to chapter 4.1 of the NOx Technical Code 2008. This UI was updated based on amendments to the NOx Technical Code 2008 adopted by Res. MEPC.177(58).

21. UI MPC54 (Rev.1 Nov 2019)

UI MPC54 provides interpretation for issuing an EIAPP certificate for a subsequent member engine within an engine family. This UI was updated based on amendments to the NOx Technical Code 2008 adopted by Res.MEPC.177(58).

22. UI MPC58 (Rev.1 Nov 2019)

UI MPC58 provides interpretation for issuing an EIAPP certificate for a subsequent member engine within an engine family. This UI was updated based on amendments to the NOx Technical Code 2008 adopted by Res.MEPC.177(58).

23. UI MPC77 (Rev.1 Nov 2019)

UI MPC77 provides interpretation of paragraph 6.2.1.2, Chapter 6 of the NOx Technical Code 2008. This UI was updated based on amendments to the NOx Technical Code 2008 adopted by Res.MEPC.177(58).

24. UI MPC33 (Rev.2 Nov 2019)

UI MPC33 provides interpretation for engines undergoing an onboard certification test in order to be issued with an EIAPP Certificate, according to regulation 2.2.4.1 of the NOx Technical Code 2008. This UI was updated based on amendments to the NOx Technical Code 2008 adopted by Res.MEPC.177(58).

25. UI MPC51 (Rev.2 Nov 2019)

UI MPC51 provides interpretation on how test cycles are to be applied for verification of compliance with the applicable NOX emission limits contained in regulation 13 of MARPOL Annex VI and the provisions of the NOX Technical Code 2008. This UI was updated based on amendments to the NOx Technical Code 2008 adopted by Res.MEPC.177(58).

26. UI MPC59 (Rev.1 Nov 2019)

UI MPC59 provides interpretation for considering a rated power at rated speed as one parameter and be applied on a paragraph 4.4.6.3 of NOx technical code. This UI was updated based on amendments to the NOx Technical Code 2008 adopted by Res. MEPC.177(58).

27. UI MPC74 (Rev.1 Nov 2019)

UI MPC74 provides interpretation regarding the necessary data to fully define the engine performance and enable calculation of the gaseous emissions, in accordance with paragraph 5.12 of NOx technical code 2008. This UI was updated based on amendments to the NOx Technical Code and on the adoption of the 2017 SCR Guidelines (Res. MEPC.291(71)).

28. UI SC123 (Rev.3 Reinstated Nov 2019)

UI SC123 provides interpretation of the requirements for service tank arrangements in Regulation SOLAS II-1/26.11. Rev.3 of this UI is reinstated after carefully reviewing the discussions at both SDC 6 and MSC 101.

29. UI GC23 (Corr.1 Dec 2019)

UI GC23 provides interpretation of the requirements for cargo tank structure heating arrangement power supply in paragraph 4.19.1.6 of the IGC Code (MSC.370(93)). This corrigendum made editorial changes to the UI GC23 in line with MSC.1/Circ.1606.

30. UI SC209 (Rev.1 Dec 2019)

UI SC209 provides interpretation for redundancy of stiffening structural members for vessels not designed according to CSR (SOLAS regulation XII/6.4.3 and SLS.14/Circ.250). This revision has made corrections for references to SOLAS regulations and harmonised CSR.

31. UI MODU3 (Withdrawn Dec 2019)

UI MODU3 provides interpretation of 2009 MODU Code (as amended) paragraphs 6.5.1 and 6.5.5 for emergency shutdown (ESD) systems arranged with multiple levels of ESD. As the UI was not endorsed by SSE6, it has been withdrawn prior to coming into force on 1 January 2020.

32. UI GC28 (Rev.1 Dec 2019)

UI GC28 provides interpretation concerning the sizing of pressure relieving devices for interbarrier spaces of the second sentence of paragraph 8.1 of the IGC Code (MSC 370 (93)). This revision aligned UI GC28 with the text agreed by CCC6 (CCC 6/14, Annex 9).

33. UI SC212 (Corr.3 Dec 2019)

UI SC212 states that regardless of the date of contract for construction, ships with a keel laying date on or after 1 January 2007 are to comply with IACS UR A2. This corrigendum made editorial change to the IACS UR A2 reference.

34. UI SC153 (Corr.1 Dec 2019)

UI SC153 provides interpretation that the diameters mentioned in SOLAS II-1/29.3.3, 29.4.3 and 29.14 should be taken as having been calculated for rudder stock of mild steel with a yield stress of 235 N/mm2. This corrigendum made editorial changes to the SOLAS references.

35. UI GC25 (Corr.1 Dec 2019)

UI GC25 provides interpretation for “a thermal insulation system as required to minimise heat leak into the cargo during transfer operations” and “cargo piping systems shall be provided with a thermal insulation system as required ... cold surfaces” in paragraph 5.12.3.1 of the IGC Code (MSC.370(93)). This corrigendum aligned UI GC25 with the text agreed by CCC6 (CCC 6/14, Annex 9).

36. UI GC26 (Corr.1 Dec 2019)

UI GC26 provides interpretation for “shall be certified to a recognised standard” in paragraph 5.13.1.1.2 of the IGC Code (MSC.370(93)). This corrigendum aligned UI GC26 with the text agreed by CCC6 (CCC 6/14, Annex 9).

37. UI GC27 (Corr.1 Dec 2019)

UI GC27 provides interpretation for “can be maintained’ in paragraph 13.2.2 of the IGC Code (MSC 370(93)). This corrigendum aligned UI GC27 with the text agreed by CCC6 (CCC 6/14, Annex 9).

38. UI GC29 (Corr.1 Dec 2019)

UI GC29 provides interpretation for an “integrated system” in paragraph 13.9.3 of the IGC Code (MSC.370(93)). This corrigendum aligned UI GC29 with the text agreed by CCC6 (CCC 6/14, Annex 9).

39-91. UI MPC Series (Del Nov 2019)

Publications listed from 39 to 91 were deleted in Nov 2019.

92. UI PASSUB1 (Del Dec 2019)

UI PASSUB1 was deleted considering existing IMO interpretation on the same subject.

Summary of New/Revisions to IACS Recommendations published in 2019

New Revised Corrigenda Deleted/Withdrawn

Index	Resolution no.	Revision	Adoption	Title	Implemention Date
1	Rec 86	Rev.2	Mar 2019	Applicable Standards for UR P4.7 "Requirements for Type Approval of Plastic Pipes"	-
2	Rec 140	Rev.1	Mar 2019	Recommendation for Safe Precautions during Survey and Testing of Pressurised Systems	-
3	Rec 90	Rev.1	Apr 2019	Ship Structure Access Manual	-
4	Rec 91	Rev.3	Apr 2019	Guidelines for Approval/Acceptance of Alternative Means of Access	-
5	Rec 96	Rev.1	May 2019	Double Hull Oil Tankers - Guidelines for Surveys, Assessment and Repair of Hull Structures	-
6	Rec 98	Rev.3	Jun 2019	Duties of Surveyors under Statutory Conventions and Codes	-
7	Rec 129	Rev.1	Jun 2019	Guidance on DMLC Part II review, inspection and certification under the Maritime Labour Convention, 2006	-
8	Rec 118	Deleted	Jun 2019	Maritime Labour Convention, 2006: Handling of Seafarer Complaints by Recognized Organizations	-
9	Rec 11	Rev.2	Jun 2019	Materials Selection Guideline for Mobile Offshore Drilling Units	-
10	Rec 41	Rev.5	Oct 2019	Guidance for Auditors to the ISM Code	-
11	Rec 92	Deleted	Oct 2019	IACS Guidelines for ISM Code and ISPS Code aligned audits and SMC and ISPS expiration dates alignment	-
12	Rec 117	Rev.1	Oct 2019	Exchange of Statutory Documentation upon Transfer of Class	-
13	Rec 11	Rev.3	Oct 2019	Materials Selection Guideline for Mobile Offshore Drilling Units	-
14	Rec 45	Deleted	Dec 2019	Guidelines for Container Corner Fittings	-
15	Rec 13	Rev.2	Dec 2019	Standards for Ship Equipment for Mooring at Single Point Moorings	-

1. Rec 86 (Rev.2 Mar 2019)

Rec 86 stipulates the applicable standards for UR P4.7 'Requirements for Type Approval of Plastic Pipes'. In this revision, the referred international standards in the recommendation have been updated. This revision updated the reference to IMO Res. A.753(18) for Tests Nos 1 to 4 in Table 2.

2. Rec 140 (Rev. 1 Mar 2019)

Rec 140 has been developed to assist classification societies when developing their own internal procedures and/or instructions to safeguard their surveyors. This revision introduced a check for pressurised systems to be done by the owner/user in G8.1 of the Recommendation.

3. Rec 90 (Rev. 1 Apr 2019)

Rec 90 provides guidance for safe conduct of overall and close-up inspections and thickness measurements under the provisions of SOLAS regulations. This revision has replaced "Resolution A.744(18)" with "the ESP Code".

4. Rec 91 (Rev. 3 Apr 2019)

Rec 91 provides guidance for the approval or acceptance, as appropriate, of alternative means of access to be provided for compliance with SOLAS. This revision has replaced "Resolution A.744(18)" with "the ESP Code".

5. Rec 96 (Rev.1 May 2019)

Rec 96 provides guidance for surveys, assessment and repair of hull structures for double hull oil tankers. This revision harmonised the terms of 'Recommendation' and 'Condition of class' with only the term 'Condition of class' being retained.

6. Rec 98 (Rev.3 June 2019)

Rec 98 stipulates the role of surveyors of Recognized Organizations in the performance of surveys and their duties toward flag State Administrations and port authorities, in line with the requirements of the statutory codes and conventions. This revision has harmonised the terms 'Recommendation' and 'Condition of class' with only the term 'Condition of class' being retained and has aligned the Recommendation with IMO Resolution A.1119(30).

7. Rec 129 (Rev.1 June 2019)

Rec 129 provides guidance on DMLC Part II review, inspection and certification under the Maritime Labour Convention, 2006. This revision has introduced new provisions concerning financial security for repatriation and financial security relating to a shipowner's liability.

8. Rec 118 (Deleted June 2019)

Rec 118 was deleted as the text of the Recommendation was incorporated into Rec 129 (Rev.1 June 2019).

9. Rec 11 (Rev.2 June 2019)

Rec 11 provides the guidance in Materials Selection for Mobile Offshore Drilling Units. This revision was updated in line with the revised UR W16 (Rev.3 Mar 2016).

10. Rec 41 (Rev.5 Oct 2019)

Rec 41 provides guidance for ISM Code auditors when performing certification under the ISM Code and is also intended to promote the consistency and uniformity of audits among ISM Code auditors. This revision harmonised the terms 'Recommendation' and 'Condition of class' with only the term 'Condition of class' being retained.

11. Rec 92 (Deleted Oct 2019)

Rec 92 was deleted as the updated text of the Recommendation was incorporated into Rec 41 (Rev.5 Oct 2019).

12. Rec 117 (Rev.1 Oct 2019)

Rec 117 recommends the exchange of statutory documentation upon Transfer of Class, by the losing society, upon request by the gaining society. This revision deleted paragraph 3.

13. Rec 11 (Rev.3 Oct 2019)

Rec 11 provides guidance in Materials Selection for Mobile Offshore Drilling Units. This revision harmonised the terms 'Recommendation' and 'Condition of class' with only the term 'Condition of class' being retained.

14. Rec 45 (Deleted Dec 2019)

15. Rec 13 (Rev.2 Dec 2019)

Rec 13 stipulates that upon request from the owner, IACS classification societies will be able to certify that a vessel is specially fitted for compliance with Section 4.3 of "Mooring Equipment Guidelines (MEG 4)". This revision has updated the reference to OCIMF MEG4.

Appendix II Summaries of IACS Member's Class Report Data 2019

ABS	Gross Tonnes	No of vessels	Deadweight	Total no. of Surveyors	Plan approval engineers	Exclusive ship surveyors	Number of recognising flag authorities
Total Size of classed fleet	**246,247,709**	**8,025**	**385,551,692**	**1,841**	550	1,291	**120**
Tankers (crude, product & gas)	114,080,203	1,978	191,188,694				
Container vessels	43,512,989	599	48,108,089				
Dry bulk	59,358,436	1,137	110,065,662				
Passenger vessels (over 12 pax)	409,201	60	306,711				
Other ship types	28,886,880	4,251	35,882,536				

BV	Gross Tonnes	No of vessels	Deadweight	Total no. of Surveyors	Plan approval engineers	Exclusive ship surveyors	Number of recognising flag authorities
Total Size of classed fleet	**126,475,930**	**9,761**	**189,127,538**	**1,403**	265	1,138	**114**
Tankers (crude, product & gas)	35,951,196	1,546	51,953,820				
Container vessels	20,269,620	614	23,266,869				
Dry bulk	44,552,829	1,087	80,864,448				
Passenger vessels (over 12 pax)	3,703,543	308	446,485				
Other ship types	21,998,742	6,206	32,595,916				

CCS	Gross Tonnes	No of vessels	Deadweight	Total no. of Surveyors	Plan approval engineers	Exclusive ship surveyors	Number of recognising flag authorities
Total Size of classed fleet	**110,717,029**	**3,704**	**176,056,497**	**994**	214	780	**52**
Tankers (crude, product & gas)	27,897,522	841	47,789,845				
Container vessels	19,972,944	352	21,689,966				
Dry bulk	55,802,026	1316	101,277,707				
Passenger vessels (over 12 pax)	1,200,143	123	323,316				
Other ship types	5,844,394	1,072	4,975,664				

CRS	Gross Tonnes	No of vessels	Deadweight	Total no. of Surveyors	Plan approval engineers	Exclusive ship surveyors	Number of recognising flag authorities
Total Size of classed fleet	**1,679,446**	**330**	**2,446,575**	**65**	25	40	**18**
Tankers (crude, product & gas)	876,689	22	1,501,407				
Container vessels	-	-	-				
Dry bulk	579,450	20	861,429				
Passenger vessels (over 12 pax)	181,694	225	39,974				
Other ship types	41,613	63	43,765				

DNV GL	Gross Tonnes	No of vessels	Deadweight	Total no. of Surveyors	Plan approval engineers	Exclusive ship surveyors	Number of recognising flag authorities
Total Size of classed fleet	**274,871,350**	**8,949**	**361,817,082**	**2,039**	606	1,433	**98**
Tankers (crude, product & gas)	96,034,895	1,975	158,944,562				
Container vessels	93,927,182	1,813	105,564,322				
Dry bulk	34,161,546	917	60,485,095				
Passenger vessels (over 12 pax)	10,335,759	317	942,417				
Other ship types	40,411,968	3,927	35,880,686				

IRS	Gross Tonnes	No of vessels	Deadweight	Total no. of Surveyors	Plan approval engineers	Exclusive ship surveyors	Number of recognising flag authorities
Total Size of classed fleet	**12,349,602**	**1,381**	**19,855,320**	**203**	64	139	**42**
Tankers (crude, product & gas)	6,803,452	177	11,591,407				
Container vessels	551,202	27	716,178				
Dry bulk	3,085,006	194	5,418,029				
Passenger vessels (over 12 pax)	132,934	62	39,108				
Other ship types	1,777,008	921	2,090,597				

KR	Gross Tonnes	No of vessels	Deadweight	Total no. of Surveyors	Plan approval engineers	Exclusive ship surveyors	Number of recognising flag authorities
Total Size of classed fleet	**64,962,586**	**1,932**	**99,241,851**	**717**	110	607	**80**
Tankers (crude, product & gas)	19,551,224	678	30,763,614				
Container vessels	8,006,841	248	9,314,632				
Dry bulk	28,867,658	473	53,895,918				
Passenger vessels (over 12 pax)	268,997	20	84,202				
Other ship types	8,267,866	513	5,183,485				

LR	Gross Tonnes	No of vessels	Deadweight	Total no. of Surveyors	Plan approval engineers	Exclusive ship surveyors	Number of recognising flag authorities
Total Size of classed fleet	**225,170,815**	**7,212**	**304,538,158**	**1,481**	461	1020	**115**
Tankers (crude, product & gas)	96,952,701	2,036	146,015,381				
Container vessels	38,869,949	634	38,008,209				
Dry bulk	51,794,887	1,213	89,572,843				
Passenger vessels (over 12 pax)	11,984,320	427	1,245,711				
Other ship types	25,568,958	2,902	29,696,014				

NK	Gross Tonnes	No of vessels	Deadweight	Total no. of Surveyors	Plan approval engineers	Exclusive ship surveyors	Number of recognising flag authorities
Total Size of classed fleet	**253,855,480**	**7,541**	**404,244,579**	**1,365**	188	1,177	**109**
Tankers (crude, product & gas)	46,640,804	1,440	73,076,721				
Container vessels	24,237,943	592	26,363,582				
Dry bulk	158,648,049	3,950	287,493,816				
Passenger vessels (over 12 pax)	107,896	7	20,414				
Other ship types	24,220,788	1,552	17,290,046				

PRS	Gross Tonnes	No of vessels	Deadweight	Total no. of Surveyors	Plan approval engineers	Exclusive ship surveyors	Number of recognising flag authorities
Total Size of classed fleet	**6,147,664**	**377**	**9,575,004**	**107**	39	68	**37**
Tankers (crude, product & gas)	2,698,588	41	5,066,683				
Container vessels	604,697	6	641,609				
Dry bulk	1,772,854	77	2,923,189				
Passenger vessels (over 12 pax)	331,103	44	65,310				
Other ship types	740,422	209	878,214				

RINA	Gross Tonnes	No of vessels	Deadweight	Total no. of Surveyors	Plan approval engineers	Exclusive ship surveyors	Number of recognising flag authorities
Total Size of classed fleet	**41,908,563**	**3,787**	**47,394,093**	**503**	84	419	**104**
Tankers (crude, product & gas)	9,039,456	628	15,083,851				
Container vessels	3,442,708	112	3,459,952				
Dry bulk	11,935,494	340	20,568,482				
Passenger vessels (over 12 pax)	7,462,118	557	1,183,588				
Other ship types	10,028,787	2,150	7,098,220				

RS	Gross Tonnes	No of vessels	Deadweight	Total no. of Surveyors	Plan approval engineers	Exclusive ship surveyors	Number of recognising flag authorities
Total Size of classed fleet	**12,416,434**	**2,482**	**13,678,203**	**734**	75	659	**69**
Tankers (crude, product & gas)	6,177,584	527	7,301,397				
Container vessels	168,519	15	206,210				
Dry bulk	559,262	23	946,466				
Passenger vessels (over 12 pax)	97,497	93	25,144				
Other ship types	5,413,572	1,824	5,198,986				

Classed fleet figures include ocean going self-propelled ships of 100 GT and over, excluding fishing vessels, military vessels and pleasure craft, with dual classed ships counted at 100%.

Number of surveyors includes combined total number of surveyors, consisting of the number of exclusive plan approval engineers (RO Code A1.1.2 Plan approval staff are the personnel authorised to carry out design assessment and to conclude whether compliance has been achieved), and the number of exclusive surveyors involved in surveys of ships (RO Code A1.1.1 Survey staff are the personnel authorised to carry out surveys (in operation and under construction), and to conclude whether or not compliance has been achieved.)

Number of recognising flag authorities means number of RO agreements with Flags, with general or standing authorisation to act on their behalf for any statutory certificate.

Appendix III IACS Membership Criteria

Criterion 1
Evidence that the organisation is a Classification Society as defined in Annex 4 to the IACS Charter and that it meets the requirements as detailed in the guidance for this criterion in section C I-4 of Volume 2 of the IACS Procedures.

Criterion 2
Compliance with QSCS.

Criterion 3
Demonstrated ability to develop, apply, maintain, regularly up-date and publish its own set of classification rules in the English language covering all aspects of the ship classification process (design appraisal, construction survey and ships-in-service periodical survey).

Criterion 4
4(a) Demonstrated ability to provide surveys of the ships under construction in accordance with the Applicant's rules and in accordance with IMO, ILO and flag State requirements.

4(b) Demonstrated ability to provide periodic surveys of ships in service, in accordance with the Applicant's rules and in accordance with IMO, ILO and flag State requirements.

Criterion 5
Sufficient international coverage by exclusive surveyors relative to the size of the Applicant's support of construction programmes and classed fleet in service.

Criterion 6
Documented experience that provides evidence of an Applicant's capability to assess designs for construction and/or major modification and/or ships in service of various types subject to any applicable IMO and ILO Convention.

Criterion 7
Significant in-house managerial, technical, support and research staff commensurate with the size of the Applicant's classed fleet and its involvement in the classification of ships under construction.

Criterion 8
Technical ability to contribute with its own staff to the work of IACS in developing minimum rules and requirements for the enhancement of maritime safety.

Criterion 9
Contribution to IACS work by the Applicant, on an ongoing basis with its own staff as described in Criterion 8 above.

Criterion 10
Compliance of classed ships with all IACS Resolutions as defined in Annex 4 to the IACS Charter.

Criterion 11
Evidence that the IMO's Maritime Safety Committee has advised in writing that the Applicant's Rules and Procedures conform to the functional requirements of the International Goal-based Ship Construction Standards for Bulk Carriers and Oil Tankers (SOLAS Reg.II-1/3-10, IMO Resolution MSC.287(87)).

Interpretative guidance in respect of the above criteria is contained in the document – IACS Procedures Volume 2 – Procedures Concerning Requirements for Membership of IACS, which is published and kept updated on the IACS website.

IACS

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