Submission to

Independent Review of Australia's Domestic Commercial Vessel Safety Legislation, and Costs and Charging Arrangements

By

The Royal Institution of Naval Architects (Australian Division) Inc.

Incorporated in the ACT
ABN 87 398 330 859
PO BOX 462, JAMISON CENTRE, ACT 2614
(P: 0403 221 631; E: ausdiv@rina.org.uk)

EXECUTIVE SUMMARY

The Royal Institution of Naval Architects (RINA) is the paramount international professional institution for naval architects and maritime engineers. RINA Australian Division therefore has members working in various roles across the domestic commercial vessel industry including as vessel designers, AMSA marine surveyors inspectors and naval architects, accredited marine surveyors and engineers involved in vessel construction and maintenance. They are therefore deeply involved in the implementation of the DCV legislative framework.

RINA members' experience with the DCV legislative framework therefore varies widely according their perspective. This submission outlines that experience, but the diversity of our membership prevents us from making any firm recommendations beyond relating that experience.

This submission demonstrates that the aspects of the existing legislative framework on which the Review is tasked to report are conflicting, so that the Review will need to strike a balance between them in charting a way forward. A further conflict is that the requirements of the NSCV do not relate to the international standards and system of survey and certification implemented under the Navigation Act.

In preparing this submission, the tasking of AMSA to take on the regulatory responsibility for about 27,000 DCVs from a background of regulating about 100 regulated Australian vessels under a completely different regulatory regime has been compared with someone going direct from running a corner store to managing a national chain of major supermarkets. Added to this, the flexible nature of the DCV regime could be compared with the price of each supermarket item being negotiable. In short to use a football analogy, AMSA has been given a "hospital pass" in being allocated this role without commensurate supplementary funding.

That being the case, together with the DCV regulatory system being apparently regarded as a cost to Government that is to be minimised rather than a public good in ensuring safety, the system requires some fundamental review before it is fit-for-purpose from the perspectives of both industry and the public as represented by Government. The submission outlines a number of measures embodied in the implementation of the DCV system through which cost factors are driving survey and safety standards downwards.

In summary, RINA holds the view that:

a). Consolidation of maritime safety matters from SATMAs into Commonwealth jurisdiction should be retained as it eliminates differences between various State/Territory jurisdictions and problems with inter-state voyages
b). The NSCV, together with its associated exemptions, DTSS, EMOCs and equivalent solutions would not appear to fully meet the requirements for securing safe operations, being flexible while also clear and simple
c). From the preceding point, a balance is clearly required between the points listed in the Terms of Reference as they cannot all be met simultaneously
d). Notwithstanding the concerns raised in this submission regarding services provided by accredited persons under the National Law, the National Regulator is unlikely to be able to compete with the small businesses providing those services, so the accreditation system should be retained
e). The lack of control of fees charged by accredited persons for services provided under the National Law has potential to undermine the effectiveness of the system in a "race to the bottom" unless the effectiveness of accreditation is closely monitored
f). AMSA should include the results of its audit program of accredited persons in its Annual Report
g). Suggestions are made for improvement of the compliance tools currently provided for in the legislation
h). The current legislative framework covers a system that diverges from that applied internationally and therefore does not facilitate vessels moving to or from other jurisdictions.
i). Given that AMSA was tasked with assuming regulatory responsibility from the States and Territories for about 27,000 DCVs with minimal budget and with conflicting constraints outlined in the dot points of the

Terms of Reference addressed in section 2 of this submission, it is no surprise that the Parliamentary inquiry into AMSA's performance found problems with the DCV system that resulted in the current Review.

j). RINA supports ATSB being given investigation powers in relation to DCVs.

Finally, RINA remains available to apply its best efforts in assisting the Review in progressing its allocated task.

Independent Review of Australia's Domestic Commercial Vessel Safety Legislation, and Costs and Charging Arrangements

1. Introduction

1.1 Naval Architects and Naval Architecture

> *"Naval architecture, the science of designing ships, submarines, floating docks, yachts, oil rigs for the offshore oil and gas industry, and any craft for use on water. Those qualified to work in this area are naval architects."*[i]
>
> "*Nowadays, naval architects must handle a wide variety of tasks including economic viability studies, conceptual design, strength and stability calculations as well as supplying the final working drawings for a ship. They may be asked to superintend ships under construction, to make the calculations for launching and oversee the tests and trials required by a new vessel. The naval architect is also "responsible for ensuring that the new ship meets Classification Society regulations as well as the statutes of International Law as defined by the international Maritime Organization and other authorities".*[ii]

This text is based on ships intended for international service but is directly applicable to domestic commercial vessels if the reference to International Law may be replaced by "relevant statutory safety requirements".

1.2 The Royal Institution of Naval Architects

1.2.1 Initially established in the United Kingdom in 1860 as The Institution of Naval Architects, The Royal Institution of Naval Architects received its Royal Charter of Incorporation 1910 with the following Objects:

> *'the improvement of ships and all that specially appertains to them, and the arrangement of periodical meetings for the purpose of discussing practical and scientific subjects bearing upon the design and construction of ships and their means of propulsion, and that relates thereto'.*

1.2.2 In order to achieve these objects in the current environment the Institution, among other activities:

- promotes the bringing together of the results of the practical and scientific experience of all those concerned with the design, construction and operation of ships and other marine artefacts; the value of these results being enhanced by their publication, examination and discussion by the Institution,
- encourages and promotes the carrying out of experiments and other enquiries intended to assist the advancement of knowledge in the science, technology and management of shipbuilding, marine technology and shipping,
- arranges for the discussion of scientific advances, new inventions and materials having an application to marine technology, and
- investigates and gives guidance on those matters of professional importance relating to Naval Architects, their education and training which are properly the concern of a professional institution.

1.2.3 In 1954 the Sydney-based Australian Association of Naval Architects became the Australian Branch of The Royal Institution of Naval Architects. In 1979 the Branch became the first Division of the Institution. The Division is incorporated in the Australian Capital Territory and contributes in its own name to the resolution of Australian matters such as those referred to the current Independent Review and parliamentary inquiries relating to maritime engineering. Accordingly, for the purpose of views expressed in this submission "RINA" should be taken to mean Australian Division."

1.2.4 The Institution's membership grades are framed around the provisions of the Washington Accord and thus enable members with appropriate education and experience to be registered as Chartered Engineers (CEng). Accordingly, Engineers Australia recognises Division Members and Fellows having CEng registration as equivalent to EA Members and Fellows registered as Chartered Professional Engineers (CPEng). The Institution is recognised

internationally, such as having Non-Governmental Organization (NGO) recognition by the International Maritime Organization to represent the views of naval architects world-wide.

1.2.5 The Division's membership is involved in ship and marine vessel design, construction, equipment, operation, sustainment, survey and certification in relation to commercial ships, naval ships and the offshore energy sector. Many members work with domestic commercial vessels (DCVs), mainly as designers, plan assessors and surveyors, both within AMSA and in the private sector. Accordingly, depending on their role in the DCV industry, many RINA members are likely to be affected to a greater or lesser extent by any recommendations resulting from the Review. While we have consulted as widely as possible, this submission cannot represent a consensus view across our membership.

1.2.6 As a learned professional society, RINA is not directly involved in commercial or employment issues, but seeks to uphold and improve in the application of proper engineering standards to the maritime industry and in the education of naval architects and maritime engineers.

1.2.7 The Division has active Sections in NSW, Victoria, Queensland, Western Australia, South Australia-Northern Territory, Tasmania and ACT.

1.2.8 This submission specifically reflects the experience of RINA members working under the National Law, not only in providing services to the domestic commercial vessel sector but also in working with that Law from the regulatory side. It has been prepared by a working group covering all aspects of DCV regulation. Membership of the group is not disclosed to prevent commercial, professional and/or regulatory repercussions flowing from the views expressed by members.

1.3 Domestic Commercial Vessel (DCV) Legislation

1.3.1 It should be noted at the outset of this section of the submission that it does not cover certificates of competency for seafarers on DCVs, as these aspects are not generally within the purview of naval architects. Nonetheless, matters of seafarer training and certification are included in the groups of documents such as standards mentioned in the legislative background which follows, irrespective of whether they are specifically commented upon in this submission.

1.3.2 Another subject of note is the extent of this Independent Review, and in particular whether "legislation" and "laws" include not only the relevant Act, Regulations and Marine Orders but also the standards, procedures and guidelines that are implemented under the Act, Regulations and Marine Orders. Obviously, given that the standards, procedures and guidelines cover thousands of pages, RINA presumes that it is beyond the scope of the Review to consider them in other than general terms.

1.3.3 Prior to the first publication of the Uniform Shipping Laws (USL) Code[iii] in 1979, the safety regulation of domestic commercial vessels was carried out by State and Territory Marine Authorities (SATMAs) according to variable laws and standards applying in each jurisdiction. The USL Code was developed over several years by a number of specialist technical committees of Commonwealth and State/Territory experts, adapting requirements from existing prescriptive industry standards for ships trading internationally, largely from instruments of the International Maritime Organization (IMO) and classification societies. The USL Code was reprinted and amended numerous times through to 2008[iv].

1.3.4 Whilst the USL Code provided uniform standards for DCVs, its implementation through legislation in each jurisdiction and its interpretation was not necessarily uniform. In particular, interstate voyages of vessels other than fishing vessels remained under jurisdiction of the Commonwealth Navigation Act 1912 for which the statutory standards largely reflected international standards. So trading vessels which were not designed and constructed to international standards required exemptions or other special considerations to facilitate such interstate voyages. Fishing vessels engaged in intrastate and interstate voyages remained under State/Territory jurisdiction but the Navigation Act 1912 covered those engaged in international voyages.

1.3.5 When given legislative effect, some of the standards in the USL Code were found to be deficient and had to be corrected as a matter of urgency. For example, the construction standards for some materials were found to

have inadequate safety factors while some of the fire extinguishing methods were impractical for use in relatively small vessels compared with the international (SOLAS) requirements from which they were derived. Other amendments were made as necessary through to 2008.

1.3.6 During the latter half of the 1980s, the IMO recognised that the safety of ships was dependent not only on their design, construction, equipment, maintenance and being safely and competently crewed, but also on having in place proper operational procedures. Its work in this area resulted in the adoption of guidelines on the subject, which in 1993 became the ISM Code[v] which was implemented mandatorily under the SOLAS and MARPOL Conventions.

1.3.7 In about 1996, the Commonwealth proposed to SATMAs that the USL Code should be replaced by a new performance-based standard called the *National Standard for Commercial Vessels (NSCV)*[vi] and established a new secretariat named the National Marine Safety Committee to coordinate and support this work which took approximately 10 years. An important feature of NSCV is that it does not purport to set standards for the structural strength, for which classification society standards are used. Instead, the NSCV is goal-based and includes as "deemed to satisfy solutions" standards and arrangements that may be used to meet the goals, but provides for flexible "generic equivalent solutions", "local equivalent solutions" and exemptions that may be necessary to meet those goals for individual vessels, groups thereof or different types of operations. While the ISM Code had never been included in the USL Code, a standard derived from it was included at Part E of the NSCV.

1.3.8 An alternative to the decade-long development of the NSCV may have been to provide guidance to SATMAs in applying the discretionary powers with regard to exemptions and acceptance of equivalents under the USL Code. Such guidance could have provided the flexibility required by vessel owners and ensured the uniform implementation of the Code between the various jurisdictions.

1.3.9 In July 2008, the Australian Transport Council (ATC) representing all federal, state and territory transport Ministers agreed to support a national approach to maritime safety regulation in relation to commercial vessels, a decision which resulted in the *Marine Safety (Domestic Commercial Vessel) National Law Act 2012* (National Law) through which jurisdiction for DCVs was transferred to AMSA from SATMAs in several stages. A replacement Navigation Act was also brought into effect in conjunction with the National Law.

1.3.10 The introduction of the National Law and associated transfer of jurisdiction to AMSA as national regulator brought into focus the different approaches taken by SATMAs to the delivery of plan approval, survey, certification and other services and the level of cost recovery applied to providing those services. In most States and Territories those services had been provided by government employees and were charged to the shipowner mostly at a level that was below the cost of their provision, presumably with the securing of public safety through vessel standards being regarded as a public good, whereas services in Queensland were delivered through a system of accredited providers who were free to set their own fees subject to oversight through random inspections. Since the budget provided to AMSA for administration of the National Law was minimal in comparison with the task, AMSA effectively had no option but to give effect to a Queensland-like system for implementation of the National Law with minimum budget.

1.3.11 It can be seen from the legislative and jurisdictional changes outlined above that the National Law, NSCV and their implementation have represented a quantum shift away from the prescriptive standards applicable to vessels trading internationally under international law and *regulated Australian vessels (RAVs)*, reflected under the Navigation Act 2012, through international conventions including principally SOLAS, the Load Line Convention and related standards, recommendations and guidelines. Given that the National Law and associated standards followed a vastly different approach to marine safety regulation than the Navigation Act 2012 and its 1912 predecessor which reflect Australia's international responsibilities, it was logical for AMSA to allocate a new business unit to manage implementation of the National Law at least in the first instance. The workload of, and systems required for, managing safety for about 27,000 DCVs as against less than 150 RAVs was no doubt another factor in making this decision; this change is akin to moving from managing a corner store to establishing and managing a national supermarket chain . RINA understands that both vessel groups are now managed under AMSA's Executive Director Operations.

1.3.12 It should be noted that the information received from RINA members in the preparation of this submission does not indicate any pressure for repeal of the MSDCVNL Act and reversion to State/Territory jurisdiction for DCVs.

1.3.13 It should be noted that the Navigation Act 2012 uses classification societies ("recognised organisations") to implement statutory standards for the design, construction, survey and maintenance of vessels in a similar role to that of accredited marine surveyors (AMS) under the National Law. However classification societies undertaking the role are subject to IMO's *Recognized Organizations Code (RO Code)*[vii] which is enforceable under international law. As the requirements of the RO Code require substantial resources, most countries including Australia do not recognise classification societies outside the membership of the International Association of Classification Societies[viii]. The RO Code is not used for AMS under the National Law, so classification society fees for a service are generally substantially higher than those of AMS. An intermediate option that the Review might consider would be for the AMS requirements to be brought up to an Australianised version of the RO Code, which would make the large consultancies more cost-competitive than at present.

1.4 This submission

1.4.1 Based on the information provided above, this submission has been prepared by a Working Group established by RINA Australian Division Council to handle liaison with AMSA on DCV matters. Other RINA members have contributed.

1.4.2 The sections that follow address in turn each of the various questions posed in the Consultation Aid[ix] document circulated by the Review.

2. Question 1 - Is Safety Legislation Fit for Purpose (First Part of Review)?

2.1 Support safe vessel operations

[*The laws should support safe behaviour, foster a safety culture across industry, and encourage continuous improvement and adoption of best practice. The laws should support people to have and maintain the skills needed to safely design, construct, equip, crew and operate vessels. The review should include comparison of safety outcomes across sectors.*]

2.1.1 These goals are achieved in theory by the National Law and the associated standards and procedures, but it is debatable whether this is the case in practice. Since many DCVs are of relatively low value, there has always been a practical limit to the cost that can reasonably be imposed on the owner for their survey. The survey price determines the amount of effort that can be put into the survey and therefore the extent to which the safe design and construction of the vessel can be validated, particularly in relation to initial survey. Since the National Law leaves the survey fees to be negotiated between the vessel owner and the surveyor, price competition between AMS has the effect of forcing down survey effort and therefore survey standards and effectively makes the classification societies and respected consultancies uncompetitive for survey of most DCVs.

2.1.2 In this regard there is conflict between the commercial operations of surveyors operating under the National Law and the required safety outcome to "have and maintain the skills needed to safely design, construct, equip, crew and operate vessels" which may be represented as a 'race to the bottom' in terms of maintaining standards. One AMS reported that "owners can and do shop around for the price and survey quality they want". Cost-driven reduced survey standards drives more conscientious surveyors out of the industry and in turn leads to reduced standards of vessels and thus safety. AMS commonly claim to be squeezed between raising their fees to cover their time costs and being undercut by others who are also seeking a place in the market, such that some accredited RINA members have questioned whether the returns from gaining and maintaining accreditation are worthwhile when considered against the costs. This dilemma is summarised by one AMS who contributed to this submission as:

> *"…….. there are many micro businesses such as mine, with minimal overheads, able to operate profitably with much lower fees. My personal experience, having worked both as a government and private surveyor, is that*

the quality and rigour of the work is substantially higher as a private surveyor. When it's your own business and insurance on the line, any incentive to drive down cost and quality is offset by an incentive to build a durable reputation. However, the down side of the industry fragmenting into hundreds of micro-businesses, is that each business has a limited ability to maintain up to date standards and software, contribute to and be aware of developing standards, undertake training and CPD, employ and train graduates etc. Over time, the industry will struggle with a lack of suitably experienced surveyors……."

2.1.3 The Review should note that the potential costs to AMS of being held responsible for substandard or incomplete surveys were, prior to the National System, attributable to the relevant SATMA.

2.1.4 Added to this is the fact that the National Regulator inherited a situation where different States/Territories had each focused their attention on their own particular areas of concern and effectively ignored other sections of NSCV and survey standards. Operators were therefore forced to more comprehensively implement the standards only when vessels moved between jurisdictions. The net result is that some operators may have observed, and complained about, increased attention to some parts of the standards under the National System whereas there appears to have been a reduction in overall effectiveness of standards enforcement as AMSA appears to have adopted a playing field equivalent to the minimum standard previously required by each State.

2.1.5 Moving to address the "operations" aspect of this subject, we note that the requirements for a Certificate of Operation (CoO) under Marine Order 504 originated from the ISM Code but has gradually diverged from the principles of that Code. Over the years proposals to merge the CoO into the Certificate of Survey (CoS) have failed to eventuate, but the main divergence is to dispense with the requirement for the vessel's operator to have a Document of Compliance covering all of its vessels. The effect of this change is apposite to supporting safe vessel operations as it provides no incentive for development of a safety culture across all vessels in a company's fleet, since MO 504 simply requires a Safety Management System for each individual vessel.

2.1.6 AMSA's main tool in assuring itself that the required outcomes are being achieved through AMS is its inspection of about one in 12 DCVs each year as indicated by the *National Compliance Plan 2021-22*. The Plan indicates that the target is generally being achieved in terms of the number of inspections but does not show how satisfactory the outcome of those inspections have been. The Plan indicates a target of auditing 20% of AMS (refer s.160(2)(m) of National Law Schedule 1) each year but gives no indication of whether they have been conducted or their outcomes, whereas one AMS has reported near 100% checks by AMSA perhaps indicating that the audit level is uneven across the country.

2.1.7 The principle of "grandfathering" received substantial attention in Chapter 6 of the Senate Committee's report[x] and needs to be considered in relation to securing safe vessel operations. The legislation needs to be capable of over-riding grandfathering in situations where the relevant standard or provision thereof applied under it is proven to be inadequate in ensuring safe vessel operations such as through coronial findings. As an example of regulatory changes that can occur over a vessel's lifetime, the IMO has in recent years significantly increased the standard weight of a passenger to reflect generalised changes in the size of human beings and the make-up of passenger loads, thus changing the international specification for lifejackets, capacity of lifeboats and stability requirements.

2.1.8 However, given that the normal economic life of a vessel can be expected to be around 25 years although many vessels remain in service for much longer, in cases where no more urgent application of changes is necessary RINA considers that there might be a limit to the application of grandfathering provisions such as (say) 25 years after the vessel's entry into service or 30 years following the entry into force of the relevant NSCV standard or provision thereof. This would be consistent with, for example, the practice of classification societies who we understand do not accept into their survey vessels more than 30 years old. To illustrate the effect of such a grandfathering limit, Flapan[xi] records that the Sydney ferry *Karrabee* was 71 years-old when it sank at Circular Quay in 1984 soon after disembarking 390 passengers.

2.1.9 On the other hand, it is sometimes argued that if a vessel is correctly maintained and appropriate survey is undertaken at the time of acceptance into service then there should be no life limit applied to the vessel. Industry should be able to assume that the above effort is adequate to maintain suitable condition to operate under its Certificate of Operation and Certificate of Survey. The issue of older vessels needing to be taken out of service often falls into obsolescence of equipment, such as engines which cannot be replaced like-for-like, so a commercial decision needs to be taken on whether to reuse the hull (for example) is worth the effort. Hence by natural attrition the older vessels are generally demolished and fall out of commercial service, an example of which is the *Lady* class Sydney ferries. RINA sees one of the tasks of the Review to be ensuring that grandfathering is not taken to extremes by permitting vessels to remain in service without meeting acceptable safety standards.

2.1.10 In comparing the National Law with other sectors, with few exceptions the Navigation Act 2012 reflects the design and construction requirements applicable internationally such as in accordance with SOLAS, Load Line and MARPOL conventions. The Navigation Act 2012 also requires RAVs to be surveyed and certificated by classification societies with regard to not only design and construction to the rules of the relevant society but also compliance with relevant statutory requirements. Accordingly, DCVs are not generally designed, constructed and equipped to international standards and so do not meet the standards required of RAVs; they cannot be readily surveyed and certificated as RAVs such as for operation on international voyages.

2.1.11 On the other hand, recreational vessels remain within the jurisdiction of SATMAs. The requirements that are applicable are understood to be limited to basic safety equipment such as lifejackets, fire extinguishers, anchors and EPIRBs. They are therefore rarely suited to rarely suitable for adaptation for service as DCVs.

2.2 Promote a risk-based approach

[T*he laws should impose safety requirements proportionate to the risk of different operations.]*

2.2.1 The original intention of the NSCV was to transform the USL Code into a performance based standard with defined required outcomes that could be used as the baseline for assessing risks. Unfortunately over the last 10 years or so the required outcomes have become largely irrelevant and industry simply uses the deemed-to-satisfy solutions and ask for exemptions. This is opposed to the concept of risk-based solutions where the alternate design arrangement should satisfy the applicable required outcomes in a risk based approach and thereby negating the need for exemptions. In practice under the National Law only a Certificate of Survey is issued, supplemented by specific exemption document(s) as applicable. Neither document effectively conveys how the performance-based assumptions at the design stage are carried through to the vessels operations. This effectively means that, as stated by an AMS in relation to this submission “no vessel is 100% NSCV compliant, and many rules are ignored”, leaving a potentially high-risk gap.

2.2.2 As described above, the National Law, NSCV and procedures in place for their implementation do not necessarily follow a risk-based approach to safety. However, in taking its flexible approach NSCV and procedures are considerably more complex and voluminous than the prescriptive requirements of the now superseded USL Code which, in catering for essentially the same vessel types and operational areas could also be said to reflect “proportionate safety requirements”.

2.2.3 However, the flexible approach embodied in the NSCV is of necessity much more complex and voluminous than simply specifying the standards to be met as in the USL Code. This aspect of the Review’s Terms of Reference is therefore in conflict with others including “minimise burden” and “simple and transparent”.

2.2.4 Input to this submission from RINA members indicates that some risk abatement measures identified in recent coroners’ reports have not been satisfactorily incorporated into NSCV, in particular the fitting of residual current devices (RCDs), the general standard of electrical work accepted on DCVs and increasing the required height of guardrails to 1000mm. On the other hand the safety effect of some arrangements accepted by AMSA may be

perverse; one AMS has reported that the colours of lifejackets and buoyant apparatus on vessels operating in crocodile-infested waters of northern Australia are actually attractive to crocodiles.

2.3 Minimise burden

[The laws should support safety outcomes in a manner that minimises regulatory and administrative burden for industry.]

2.3.1 Some RINA members have commented that there is room for AMSA to improve its systems so that industry can clearly and consistently deduce what is expected.

2.3.2 From a technical perspective, the system of deemed-to-satisfy solutions, generic equivalent solutions, local equivalent solutions and exemptions requires much more work by a vessel's owner than a system of deterministic requirements in that the flexible and risk-based system implemented under the national law effectively requires justification of means of meeting required outcomes if deemed-to-satisfy solutions are not used. Accordingly the goal of minimising burden conflicts with the goals of being risk-based, flexible, simple and transparent as the flexible approach may entail additional burdens of effort and costs when compared with a list of "must-do" items to get the vessel accepted into survey or retained in survey.

2.3.3 As a learned society rather than a trade union, RINA does not seek to increase the number of technical jobs involved in AMSA's implementation of the National Law requirements, but it is clear that administrative personnel comprise the vast majority of AMSA personnel delivering the National System. Accordingly, the System would appear to an outsider to be a box-ticking exercise with few technical resources available to oversight the achievement of required safety outcomes through services provided by accredited persons. RINA has an interest in this situation as its objects in effect aim at securing the application of appropriate engineering knowledge and skills properly applied to the design, construction, equipment, maintenance and operation of ships, boats and other marine structures.

2.3.4 The lack of oversight of fees charged by accredited service deliverers may leave vessel operators open to commercial exploitation, particularly in cases where there is limited effective market for provision of service. On the other hand, each accredited service provider is a small or medium business that needs to set their fees to cover the often substantial costs involved in maintaining that business, which must inevitably be much higher than the fees under the system prevailing prior to the National Law in those States where the services were provided by government employees and sometimes subsidised.

2.3.5 In the preparation of this submission, some AMS have reported adversely on the administrative burden imposed on them to enter data into what they claim to be a cheap, clunky and gtitchy data-collection system and of the duplication of effort with AMSA personnel oversighting AMS' work, particularly initial surveys. The inadequacies of the data system may have contributed to the capsize of the fishing vessel *RETURNER*, where the survey records were inadequate to prevent the vessel from operating after the owner (who was lost when the vessel overturned) had removed ballast that was required for stability purposes.

2.4 Are flexible

[The laws should cater to the diversity of regulated businesses, individuals and vessels, and accommodate innovation and changes in technology.]

2.4.1 Whereas the USL Code had been developed from prescriptive standards on the basis of vessel owners needing to know what specific requirements had to be complied with for the vessel to trade, the NSCV was developed to provide varied options in meeting required safety outcomes. NSCV therefore provides plenty of flexibility which comes at the expense of complexity with which must be associated increased compliance cost, at

least in the first instance. As an illustration of the increase complexity, the original 1979 edition of the USL Code was 589 pages, whereas the NSCV currently comprises over 1000 pages plus thousands more of referenced Australian, ISO, Lloyds Register and USL Code standards.

2.4.2 However, while the laws giving effect to the NSCV provide the required flexibility, their complexity makes verification of compliance a much more complex technical problem which has been addressed through a "tick-box" system which, while bureaucratically efficient, reflects minimal oversight by technically skilled persons other than those accredited to tick the boxes.

2.4.3 But the current system is still not very flexible as evidenced by a situation brought to attention by a RINA member. In this case the owner of a vessel was prosecuted by AMSA for allowing the vessel to be lightly grounded on a sandy beach in relatively benign sea conditions to discharge passengers when the vessel had not been approved for such groundings but suffered no damage from the incident. In response to this prosecution, a naval architect was engaged to undertake calculations to demonstrate that the grounding did not prejudice safety. The calculations did not succeed in preventing a successful prosecution. RINA followed this up with a query to AMSA on what standards should be met by the vessel to demonstrate that such groundings could safely be undertaken. AMSA refused to specify any standards, indicating a lack of willingness to provide meaningful guidance for those dealing with such situations.

2.5 Are simple and transparent

[The laws should be informed by wide consultation, be accessible and clear, and support operators to understand and comply with safety requirements that apply to them.]

2.5.1 In addition to the complexity outlined in 2.4.1, some of the requirements of NSCV are so complex that a "guide" is provided for users to supplement the relevant NSCV Part through the relevant page of the AMSA website. In the past some NSCV sections or drafts of proposed sections have been so complex as to be unmanageable for implementation without such guidance. Unfortunately, some AMSA "guides'" have become the pseudo standard and each time the "guide" is updated its contents tend to drift further away from the legal standard of the relevant part of NSCV.

2.5.2 To improve simplicity, the legislation could of course dispense with the risk-based approach and the options associated with it such as EMOS and standard exemptions, but this would require setting deterministic requirements that must be met to gain a survey certificate, and thus also take away flexibility to manage safety according to the circumstances of each vessel. Examples of deterministic requirements that could be used include the superseded USL Code and the IACS Recommendation 99[xii], which is understood to be used by some countries to manage safety through classification societies as a supplement to the design and construction rules of the relevant classification society. In this regard, some of the provisions of the IMO High-Speed Craft Code[xiii] were written into NSCV, introducing arguably unnecessary rules that significantly increased build costs for high-speed DCVs for which the USL Code had proven it was a suitable standard for these craft.

2.6 Support effective compliance

[The laws should provide an effective and practical range of compliance powers and enforcement tools for AMSA.]

2.6.1 The system of vessel surveys and certification implemented under the National Law does not lend itself to enforcement in similar manner to AMSA's enforcement of international maritime conventions in relation to ships trading internationally into Australian ports through port State control. For such a system to be effective, any deficiencies found at on-board inspection generally need to be in relation to specific (and usually deterministic) requirements of the conventions and/or standards implemented through those conventions.

2.6.2 Enforcement of effective compliance with the provisions of the National Law by AMSA's marine inspectors would seem to require detection of non-compliance with the more general "required outcome" requirements. For example, in relation to relatively minor offences a graded penalty system could be implemented, such as an on-the-spot fine resulting from failure to carry sufficient lifejackets similar to a road speeding fine. At the moment there is no simple system to issue a penalty for smaller matters, so the small matters are generally ignored.

2.6.3 Measures such as the on-the-spot fines for minor offences suggested in 2.6.2 should be implemented to provide AMSA with the tools to provide continuous small nudges to industry towards desirable outcomes rather than bigger hits such as prosecutions at longer intervals.

2.6.4 As mentioned in paragraphs 2.3.2 and 2.3.4, implementation of the legislative framework through accredited persons adds another level of complexity with regard to compliance, namely commercial considerations.

.1 From a vessel owner's perspective, the main priority is to obtain the required Certificate of Survey at the lowest possible cost.

.2 From the perspective of the naval architect or other AMS under the National Law, the business need to be competitive by minimising charges to the client while covering costs incurred will often restrict the resources applied to a particular task.

.3 Presumably in recognition of this conflict, the thoroughness with which functions are carried out is controlled by the requirements in 3.2(1) of the Marine Surveyors Accreditation Guidance Manual Part 1[xiv] (MSAGM1) for AMS to either be covered by an ISO.9001 quality management system or to document their work using checklists annexed to MSAGM2[xv] covering Surveys of Vessels.

2.6.5 The National System provides for individuals rather than companies to become AMS. However, the conflict of interest provisions in section 2.3 do not appear effective in requiring independence between two or more individuals providing related but separate services. Paragraph 2.3.1(4) provides for such issues to be managed by self-assessment but RINA is not aware of any circumstances in which potential conflicts have been challenged.

3. Question 2 - Does the national law interact efficiently with other Commonwealth and State and Territory frameworks, particularly the *Navigation Act 2012* (Navigation Act) and workplace health and safety regulations, as well as with international maritime safety obligations?

3.1 As outlined in paragraph 1.3.7, the pseudo risk-based approach embodied in the National Law in relation to the design and construction of ships is completely different from the deterministic approach reflected in the Navigation Act 2012 which in turn reflects the international maritime safety system.

3.2 Putting to one side issues such as strength requirements for such a change in service, a DCV that is surveyed and certificated under the National Law will therefore not generally comply with the Navigation Act 2012 requirements for a *regulated Australian vessel* should it be transferred from intra-state or inter-state voyages to international voyages. Significant issues involved include the Navigation Act requirements for the vessel to be in survey with a recognised classification society as against being surveyed by an AMS and certificated by AMSA, the need to comply with and certified against the requirements of relevant international conventions such as SOLAS, Load Line, Tonnage, MARPOL and STCW and so on. Non-conformity with international requirements can generally be handled by exemption for occasional voyages such as return voyages to Asia for purposes including drydocking, but can be a major problem where the vessel's voyage pattern changes to more regular international voyages.

3.3 The National Law therefore does not interact efficiently with the Navigation Act 2012 in a legal sense, but where possible AMSA attempts to minimise the barriers through practical measures for vessels changing jurisdiction

between the two acts.

3.4 It has been reported by RINA members that AMS who only deal with the domestic industry seem to get their heads around the DCV requirements in reasonable time. However, the number of queries received from Classification Societies would seem to indicate that the system is not simple and transparent for people who work across the RAV/DCV divide, probably due to the divergence of the National (DCV) System from the international system. It has been reported to RINA that this difference between RAV and DCV systems seems to industry to be so profound that each may as well be administered by a different country.

3.5 It should be noted that with regard to fishing vessels of 24 metres and above in length, Australia has not given effect to the Torremolinos Convention[0]0and associated instruments culminating in the Cape Town Agreement of 2012[xvi] which is the fishing vessel counterpart to the SOLAS Convention. Similarly, the National Law does not give effect to the IMO recommendations with regard to smaller fishing vessels. Accordingly, the National Law provisions relating to the design, construction and certification of fishing vessels are completely out of step with comparable international requirements.

3.6 As RINA members are fundamentally involved in the design and construction of vessels, this submission does not attempt to cover workplace health and safety (WHS), other than to note that State and Territory legislation on this subject is recognised through s.5(2) of MSDCVNL Act, the safety requirements of which apply in parallel to WHS requirements. Accordingly, if maritime safety regulation were to be transferred to the WHS umbrella then either:

- s.5(2) of the MSDCVNL Act would have to be repealed and replaced with relevant provisions under Commonwealth law; or
- owners of DCVs would revert to State jurisdiction and thus lose the single jurisdiction advantages for vessels on interstate voyages.

3.7 Notwithstanding 3.5, it should be noted that some countries are understood to regulate their domestic commercial vessels through a WHS approach, such as required by New Zealand Maritime Rules Parts 19 and 44. RINA has no direct knowledge of the success of this approach by New Zealand, but although it is implemented through accredited persons it appears to provide much less guidance to those involved than its Australian counterpart and so may be impractical to implement on a uniform basis for the 27,000 vessels covered by the National Law. Accordingly, the National Law would appear to be part-way between the traditional international maritime safety regime and a pure WHS approach.

3.8 The New Zealand approach is understood to place responsibility on the operator of the vessel to demonstrate that their safety management system includes hardware and software, including procedures, is sufficient for safe vessel operation. Thus the New Zealand system would seem to facilitate vessel operations that may not be permissible under Australian law such as high-speed passenger operations in very narrow fjords.

4. Question 3 - Is the scope of the definition of 'Domestic Commercial Vessels' appropriate to capture the types of vessels and operations that justify additional regulatory intervention under the National Law beyond existing WHS obligations?

4.1 RINA has no comments in relation to this question, since the present concept and definition of *domestic commercial vessel* has been developed from the principles of the originally enacted Navigation Act 1912 and thus

predates by many years the modern WHS legislation developed following the *PIPER ALPHA* platform explosion the North Sea in 1988.

5. Question 4 - Should the framework ensure the Navigation Act provides the default standards for commercial vessels?

5.1 The Navigation Act provides a framework for the safety of vessels trading internationally, including passenger ships, cargo ships and fishing vessels. While its provisions primarily implement the requirements of international conventions such as SOLAS and Load Line, and thus cover passenger ships of any size and cargo ships of 500 gross tonnage and above, it also provides for standards for other non-convention vessels such as cargo ships and fishing vessels engaged on international voyages.

5.2 With few exceptions the Navigation Act effectively requires vessels to which it applies to be classed by a recognised classification society (member of the International Association of Classification Societies), at considerably increased cost compared with survey by an AMS under the National Law.

5.2 The reference in the question to "default standards" of the Navigation Act is therefore to standards that would make the vessel fit to undertake international voyages without external assistance. Such default standards would clearly not fit within the parameters addressed in Question 1, being overly burdensome with regard to costs and the risks faced by DCVs, many of which operate in sheltered waters and close to port.

6. Question 5 - Is the definition of an "Owner" of a vessel in the National Law sufficiently clear and understood?

6.1 RINA is not aware of any case in which the definition of owner in the National Law has been misunderstood or found to be insufficiently clear. We note that the present definition includes "a person with overall general control and management of the vessel" and thus does not need amendment to cover a vessel operated by a charterer or management company as against the holder of the vessel's legal title.

7. Question 6 - Would expanding the Australian Transport Safety Bureau's role to include domestic commercial vessel safety support substantially improved safety outcomes for industry, as well as regulators and policy makers?

7.1 At the moment AMSA carries three roles which, unless managed very carefully, would appear to constitute a conflict of interest, namely:

- regulator issuing certification;
- compliance enforcement: and
- investigator of incidents.

7.2 RINA members are naval architects and not, in general, lawyers. However, we are aware that significant casualties may be referred to coronial inquest.

7.3 Commencing at s.80, the National Law provides for the appointment of marine safety inspectors and for those inspectors to investigate incident reports. However, to RINA's knowledge those powers are invariably used for investigation of possible offences or coronial references. RINA holds the view that AMSA's marine safety inspector resources are insufficient to facilitate investigation of incidents where comparatively minor safety improvements

might bring significant improvements to DCV fleet safety.

7.4 Additionally to 7.3, self-investigation of incidents by AMSA is not conducive to recommending changes to legislation or procedures by AMSA. That is not to say that the existing investigation provisions of the MSDCVNL Act are inappropriate, but that they should be supplemented by providing ATSB with the opportunity to follow-up significant incidents with more formal investigations than AMSA's initial investigations.

7.5 The "broad brush" WHS approach to maritime safety as adopted by New Zealand and discussed in 3.7 and 3.8 would not be amenable to finding rapid solutions to technical deficiencies such as could flow from improved investigation of incidents as suggested in 7.3.

7.6 Accordingly, RINA holds the view that expansion of ATSB's role to include DCVs would significantly improve safety outcomes.

7.7 Notwithstanding the foregoing, RINA understands that State/Territory legislation in relation to transport accident investigation may still permit investigation of accidents occurring to vessels covered by the MSDCVNL Act.

8. Question 7 - Would removing, in whole or in part, current grandfathering provisions substantially improve safety outcomes? If so, how could industry be supported in making that transition?

8.1 Current grandfathering provisions of the National Law are based on the assumption that a ship does not suddenly become unfit for purpose because the rules have changed. Also, many vessels in which owners have invested are built with a prospective service life of over, say 30 years, so grandfathering enables them to continue in service without changes to aspects of their design and construction that are not readily upgraded, such as basic structure, subdivision against flooding and replacement of engines.

8.2 NSCV is effectively a standard for new-built vessel, but AMS are not provided with information about acceptable degradation of structure or machinery as is the case for classification societies operating under SOLAS. On the other hand, grandfathering presents problems such as where a surveyor has to decide on which year over its life of perhaps 30 years or more the deterioration of a vessel's structure has reached a stage where the structure is no longer strong enough for the loads to which it is subjected. So a DCV owner has the opportunity to shop around to have the vessel surveyed by a lenient AMS, which is not conducive to maintaining safe standards.

8.3 RINA supports current practice whereby grandfathering does not apply to a vessel that changes its vessel use and/or operational area category(s) is to be assessed against the requirements applying to new vessel operating in that use and operational area.

8.4 IMO overcomes this problem by applying new and improved regulations in two possible ways:

- Ships built after entry into force date; and
- All ships, including existing ships, after another date.

A third method used following the *HERALD OF FREE ENTERPRISE* and *EXXON VALDEZ* disasters is a phase-out date following which (in these cases ro-ro passenger ships and single-hulled tankers respectively) ships could not continue in service unless they met upgraded standards. This method has also been used by AMSA to specify particular sets of SOLAS amendments with which livestock carriers must comply.

8.5 RINA holds the view that each amendment of the NSCV needs to be considered with regard to the urgency of the need for it to be applied to existing vessels or, where the deficient safety levels are such as to warrant it, for

existing vessels to be either upgraded to the new standard or withdrawn from service.

8.6 Irrespective of requirements introduced earlier as suggested in 8.5, it might be appropriate for grandfathering to apply for a maximum period such as 30 years from when the vessel was built.

9. Question 8 - Does the current framework provide clear and simple standards for operators to meet their safety requirements? If not, how could it be improved?

9.1 The standards implemented under the National Law, namely the NSCV, are far from clear and simple, given that 1.6 of NSCV Part B provides for required outcomes to be met through:

- Deemed to satisfy solution (DTSS);
- Equivalent means of compliance (EMOC) approved by the National Regulator under Division 4 of Marine Order 503; or
- Equivalent means of compliance (EMOC) approved by AMSA under 1.6 of NSCV Part B or 3.4 of Part E as in force prior to the present 2018 issue of NSCV Part B;

or is exempt from a particular requirement as provided for in s.143 of Schedule 1 to the national Law.

9.2 Further to the information outlined in 1.3.7, RINA understands that the original intention of the NSCV was for the DTSS to be used for the vast majority of vessels, whose operators simply wanted to know what requirements they had to comply with. The flexibility provided by EMOCs and exemptions was to be used in exceptional circumstances where an appropriate safety case demonstrated the need for that flexibility.

9.3 In practice, the NSCV was written on a risk analysis methodology rather than a standard and exemptions from DTSS provisions are understood to have become the rule. Consequently the current framework is far from clear and simple, not to mention impossible to apply consistently across the approximately 27,000 vessels within the jurisdiction.

9.4 However, if the National Law were to revert to deterministic standards to provide the desired simplicity it would lose flexibility to be applied appropriately to all situations and to new technologies.

9.5 RINA suggests that the number of generic equivalent solutions or standard exemptions should be reduced by either directly incorporating them into the requirements or removing them. AMSs report that AMSA rarely issues individual equivalences, preferring to grant exemptions. But ideally any generic equivalent solution or standard exemption should have a sunset placed on it so that it ceases to apply if not incorporated into the next review of the relevant NSCV part or survey standard. However, AMSA's limited resources to review the various parts of NSCV are insufficient for such regular changes, as indicated by some of the parts listed in the 2017-18 Annual Regulatory Plan 2017-18[xvii] remaining on the Annual Regulatory Program 2021-22[xviii]. The review process is heavily dependent upon input from Technical Advisory Panels which is provided gratis by panel members; given that those members are generally small- or micro- businesses, this input is provided at the expense of time and effort put into those

businesses.

9.6 To enable it to gauge the usage of the flexibilities provided by NSCV, the Review should seek from the National Regulator statistics on the numbers of EMOCs, usages of generic equivalent solutions[xix], other equivalent solutions, usages of standard exemptions[xx] and other exemptions.

10. Question 9 - Does the current framework provide an effective and practical range of compliance powers and enforcement tools for AMSA?

10.1 The necessary powers and tools are provided for in the legislation, but AMSA is not provided with sufficient budgetary resources to effectively enforce the legislation.

10.2 As mentioned in paragraphs 2.6.2 and 2.6.3, there is a gap in the regulatory compliance tools at the lower end of severity of offence. Our reading of the National Law is that the lowest offences are identified as 60 penalty units which in current dollar terms is around $12,000. In trying to encourage / discourage certain behaviours using penalties at this level, there is an expectation that there would be a body of evidence to support the penalty and under AMSA's current compliance tools a brief of evidence and witness statements etc. is needed. If a prosecution proceeds through to the delays involved in processing a case, the time and effort taken for AMSA to establish the requisite documentation renders the compliance tools ineffective in changing behaviours.

10.3 The current compliance tools appear to have been adapted from the Navigation Act. However, the most common method of securing rectification of significant deficiencies under the Navigation Act is detention, which where justified can be applied and lifted instantly and imposes a cost of taking the vessel out of service for the minimum time necessary. This sanction is provided for in s.101 of MSDCVNL Act, but the legislative provisions appear operationally cumbersome and RINA is not aware of any cases in which it has been used. RINA understands that detention under the MSDCVNL Act may involve it taking possession of the vessel together with the responsibility for and securing and maintaining it, so it prefers to use prohibition orders to prevent the vessel being used.

11. Question 10 - Are there specific safety initiatives that would substantially improve safety outcomes?

11.1 Attention needs to be given to the question of fees that accredited persons are permitted to charge for providing accredited services to avoid business pressures necessitating the resources allocated to those services being driven down to the extent that they are ineffective in achieving the required safety outcomes.

11.2 On the other hand, RINA notes that the number of audits of accredited persons under s.160(2)(m) of the National Law and s.45 of the National Law Regulation is not reported in AMSA's annual report. As RINA members who are AMSs advise that such audits are conducted, a summary of their outcomes in relation to all of the matters listed in s.45(2) of the Regulation should be reported. AMSA should be provided with appropriate resources to

conduct sufficient audits to secure public safety through the effectiveness of the DCV system.

12 Question 11 - What can be done to improve safety incident reporting both for safety and Workplace Health and Safety purposes?

12.1 Consistent with para 4.1 of this submission, RINA has no comments on the WHS aspect of this question.

12.2 With regard to reporting safety incidents, it may be appropriate to reinforce the reference to "damage" in clause 4.8(a) of MSAGM2 to ensure that surveys include damage to the ship or its equipment that may have resulted from an incident.

12.3 As AMSA is both the safety regulator and the prosecutor of offences, there is a disincentive to industry to openly report incidents in a culture of continuous improvement as there is a perception that AMSA may use the reported information as evidence for a prosecution.

13 CONCLUSIONS

13.1 The legislative framework provided by the National Law is the result of changes made over the past decade or more with functions previously covered by State and Territory law being transferred to the Commonwealth, but many of its components can be traced back to the development of the USL Code in the 1970s and the decision during the 1990s to replace that Code with the NSCV.

13.2 The current Review should therefore trace back through the decisions made over this period to determine which decisions should be revisited, since the present legislative framework reflects a number of conflicting points between the various terms of reference. The outcome of the Review should, of necessity provide a balance between those points.

13.2 While not wishing to pre-empt what the Review's findings should be, RINA holds the view that:

a). The consolidation of maritime safety matters from SATMAs into Commonwealth jurisdiction should be retained as it eliminates differences between various State/Territory jurisdictions and problems with inter-state voyages
b). The NSCV, together with its associated exemptions, DTSS, EMOCs and equivalent solutions would not appear to fully meet the requirements for securing safe operations, being flexible while also clear and simple
c). From the preceding point, a balance is clearly required between the points listed in the Terms of Reference as they cannot all be met simultaneously
d). Notwithstanding the concerns raised in this submission regarding services provided by accredited persons under the National Law, the National Regulator is unlikely to be able to compete with the small businesses providing those services, so the accreditation system should be retained
e). The lack of control of fees charged by accredited persons for services provided under the National Law has potential to undermine the effectiveness of the system in a "race to the bottom" unless the effectiveness of accreditation is closely monitored
f). AMSA should include the results of its audit program of accredited persons in its Annual Report
g). Suggestions are made for improvement of the compliance tools currently provided for in the legislation
h). The current legislative framework covers a system that diverges from that applied internationally and therefore does not facilitate vessels moving to or from other jurisdictions.
i). Given that AMSA was tasked with assuming regulatory responsibility from the States and Territories for about 27,000 DCVs with minimal budget and with conflicting constraints outlined in the dot points of the

Terms of Reference addressed in section 2 of this submission, it is no surprise that the Parliamentary inquiry into AMSA's performance found problems with the DCV system that resulted in the current Review.

j). RINA supports ATSB being given investigation powers in relation to DCVs.

13.3 RINA would of course wish to assist the Review in any way it can, while noting that the RINA member's best suited to providing assistance would be volunteers with the responsibilities of full-time jobs.

*****

ENDNOTES

[i] Dear, ICB & Kemp, Peter (eds); *Oxford Companion to Ships and the Sea*, Oxford University Press, paperback edition 2006, pp 378-379

[ii] Ibid, p.379 quoting *Modern Naval Architecture* by Fred M Walker

[iii] Marine and Ports Council of Australia, *Uniform Shipping Laws Code*, Commonwealth of Australia Gazette No. P 15, Australian Government Publishing Service, Canberra December 1979

[iv] *Uniform Shipping Laws Code*, https://www.amsa.gov.au/about/regulations-and-standards/uniform-shipping-laws-code

[v] IMO, *International Management Code for the Safe Operation of Ships and for Pollution Prevention* (Res. A.741(18), International Maritime Organization, London 1993 (subsequently amended, current edition 1998)

[vi] *National Standard for Commercial Vessels*, https://www.amsa.gov.au/about/regulations-and-standards/national-standard-commercial-vessels-nscv

[vii] International Maritime Organization, resolutions MEPC.237(65) and MSC.349(92)*Code for Recognized Organizations*, IMO, London, effective 1 January 2015

[viii] https://iacs.org.uk/about/members/

[ix] *Independent Review of Domestic Commercial Vessel Safety Legislation* 1 -CONSULTATION AID, promulgated by email on 3 February 2022

[x] Rural and Regional Affairs and Transport Legislation Committee, *Performance of the Australian Maritime Safety Authority,* Commonwealth of Australia, Canberra, June 2020

[xi] Flapan, Mori, *What should be done with Grandad? - Discussing the application of new standards to the existing fleet,* National Marine Safety Committee's Marine Safety 2010 Conference, Perth, August 2010

[xii] International Association of Classification Societies, *Recommendation 99 - Recommendations for the Safety of Cargo Vessels of less than Convention Size*, IACS, London, 2013

[xiii] *International Code of Safety for High-Speed Craft (MSC.174(79)),* International Maritime Organization, London (current edition 2021)

[xiv] *National Law - Marine Surveyors Accreditation Guidance Manual 2014 Part 1 – Accreditation of marine surveyors*, AMSA, amsa.gov.au

[xv] *National Law - Marine Surveyors Accreditation Guidance Manual 2014 Part 2 –Survey of vessels*, AMSA, amsa.gov.au

[xvi] *Cape Town Agreement of 2012*, International Maritime Organization, London, 2018

[xvii] https://www.amsa.gov.au/about/corporate-publications/annual-regulatory-plan-2017-18

[xviii] https://www.amsa.gov.au/about/corporate-publications/annual-regulatory-program-2021-22

[xix] https://www.amsa.gov.au/about/regulations-and-standards/generic-equivalent-solutions-national-standards

[xx] https://www.amsa.gov.au/about/regulations-and-standards/national-law-act-exemptions-marine-orders