

# Regulatory Impact Statement

## For *Marine Safety Regulations 2011*

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# Executive Summary

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The Department of Transport (DOT) conducted a review of the *Marine Act 1988* in 2009 in response to sustained growth in vessel traffic, reduced water availability due to drought, developments in technology, a new generation of vessel operators and an increasing incidence of hospital treated injuries associated with recreational boating.

The main conclusion of the review was that while there is no need to make revolutionary change to Victoria's marine safety legislation, there is an opportunity to make improvements. Importantly, there is a need to respond to changes in safety risks.

In response to the findings of the review, new legislation – the *Marine Safety Bill* – was introduced into the Victorian Parliament in August 2010 and was passed on 17 September 2010.

The *Marine Safety Act* is intended to come into operation through proclamation on 1 December 2011. Proposed regulations need to be made before the new Act can commence. Accordingly, there are significant opportunities for marine stakeholders with interests or concerns to participate in resolving the details of proposed reforms through the making of the regulations.

The *Subordinate Legislation Act 1994* generally requires a Regulatory Impact Statement (RIS) to be prepared for each set of regulations or amendments that are proposed, and requires the release of the RIS for the purpose of public consultation to ensure the 'need for, and the scope of, the proposed statutory rule is considered by any sector of the public on which an appreciable economic or social burden may be imposed by the proposed statutory rule.'

In accordance with guidelines under the *Subordinate Legislation Act 1994*, this RIS considers a zero or 'no regulation' base case.

A large proportion of the proposed *Marine Safety Regulations 2011* remake requirements presently prescribed in the *Marine Act 1988* and *Marine Regulations 2009*. However, a number of changes are proposed to align with features of the new *Marine Safety Act 2010*. In addition, analysis indicates that there is scope to make changes to improve safety and law and order outcomes and to reduce "red tape".

The main changes from the existing regulations that are proposed are summarised below. Each of the headings relates to a Chapter in the RIS.

## Registration of vessels (Chapter 4)

- › Persons who apply to have a vessel registered, or apply to transfer registration of a vessel, will be required to have registration details verified by an "accredited person". This will progressively improve the accuracy and integrity of the vessel registration system so it can be more effectively used for compliance and enforcement activities. Dealers, manufacturers and other industry members will be accredited and will verify the details of the vessels that they sell. In time, it is foreseen that verification of registration details will also be possible at VicRoads offices.
- › All recreational vessels, in order to be registered or re-registered, will be required to have a Hull Identification Number (HIN). A HIN provides a means to positively identify a boat using a unique series of numbers and letters permanently affixed to the hull. Its purpose is to enable boats to be tracked in order to deter or address boat theft and "re-birthing". Establishing this requirement aligns Victoria with most other States and Territories. Those persons who own vessels which do not already have HINs affixed (some vessels manufactured pre-2002) will need to pay to have HINs affixed by persons authorised by the national boatcode company. In most cases authorised persons are expected to be the same persons who will be accredited to verify registration details.

- › The estimated costs of verifying registration details and affixing HINs to vessels that do not already have them is \$12.4 million in present value terms over the 10 years period the proposed regulations are expected to be in place. The benefits of this reform would outweigh these costs if the combination of HINs and verification is successful in increasing vessel recovery rates by at least 12% per annum. DOT believes that mandatory HINs and verification processes will be at least this effective. However, this is a value judgment that needs to be scrutinised through public consultation.

*Question: Do you believe that the proposed mandating of HINs and system of registration verification would result in at least a 12% increase in vessel recovery rates?*

- › Analysis has revealed that significant cost savings can be made by reducing the frequency of registration renewal from annual to every 3 or 5 years. However, it is not known whether boat owners are willing to pay applicable fees years in advance.
- › DOT recommends changing the renewal period to 3 years but to implement this, significant system changes would be necessary. Accordingly, in the short term, the proposed regulations continue the requirement for registration to be renewed annually.

*Question: Do you support changing the frequency of registration renewal if this would mean that you would have to pay the estimated fees specified in the following table?*

Vessel Length	Current	Every 3 years
Less than 4m	\$35.40	\$97.60
Greater than 4m	\$73.90	\$213.10

## Vessel standards (Chapter 5)

- › Analysis has revealed that the costs associated with establishing recreational vessel standards and a system of periodic safety checks outweigh the estimated safety benefits. This is also the case for more targeted measures aimed at addressing specific risks, for example, the risk of fuel fires and explosions associated with inboard petrol engines in vessels over 15 years old.
- › Accordingly, regulations establishing recreational vessel standards are not proposed. Such reform, should it be justified, would be better handled at the national level, to reduce the regulatory compliance burden on boat manufacturers.

*Question: Do you agree with this result? Or do you believe that the analysis is flawed in some way? If so, how?*

*Question: Do you support the establishment of standards for recreational vessels and a system of safety checks? If so, what evidence supports your views?*

- › The regulations propose conditions of registration which make it an offence to cause or allow a vessel to be operated if it has not been maintained sufficiently (i.e. making sure it is watertight, has no fuel leaks, steering system works, etc). It is already an offence under the *Marine Safety Act 2010* to knowingly operate an 'unsafe' vessel. The proposed regulations will: (a) codify some of the circumstances when the condition of a vessel makes it unsafe; and (b) enable these requirements to be more readily enforced through use of infringement notices. There are no new obligations (and therefore, no new costs and benefits), but the efficacy of enforcement can be expected to improve.

*Question: Do you agree that if the safety features of your vessel are not working then it is not fit for purpose and possibly 'unsafe'?*

*Question: Do you agree with the proposed regulations' list of circumstances in which the condition of the vessel has made it unsafe? If not, why?*

*Question: Do you believe that it would be difficult or costly to comply with the requirement to ensure the hull is watertight, the steering system works, there are no fuel leaks, etc? Do you think that the effect of the proposed regulation is more than what is intended by the prohibition of the operation of unsafe vessels?*

*Question: Do you have any further suggestions regarding what the proposed regulations should cover? In your view, what feature(s) of a vessel need to be maintained in order for it to remain in a safe condition?*

*Question: Do you think there is a risk that some vessel owners will respond to the proposed regulation by removing safety features instead of maintaining them?*

## Marine licences and endorsements (Chapter 6)

- At present, licence holders can renew for a period of 1, 3 or 5 years. The regulations propose limiting choice to 5 years. This would eliminate 450,000 transactions over the 10 years the proposed regulations would be in effect, and deliver significant compliance cost savings. The benefit of these cost savings is estimated to be in excess of \$15m in present value terms over the 10 year period.

*Question: Do you support or oppose the adoption of a 5 year licence period? If not, why?*

- The regulations propose to limit the capacity for licensed masters to supervise the operation of other persons. A licensed master may only supervise the operation of unlicensed persons if the licence holder is: (a) over 18 years of age (and therefore subject to the normal criminal justice system); and (b) is on board the vessel and in a position to take immediate control of the vessel. This is a new regulation to codify what is meant by 'supervision' under the *Marine Act 2010*.

*Question: Do you support the codification of what is meant by 'supervision'? If not, why?*

- Analysis has revealed that the existing PWC knowledge based endorsement can be justified if it is reasonable to believe that it leads to a 3.3% to 4.1% reduction in injury incidents.

*Question: Do you think the present knowledge based licence endorsement for PWCs is effective? Do you believe it should be eliminated or do you think the training and testing requirements should be increased?*

*Question: Do you agree that it is reasonable that PWC users would have been involved in at least 4% more injury incidents if they had not been required to obtain the PWC licence endorsement?*

- Based on analysis of safety data and risks, the establishment of a number of licence endorsement requirements may be warranted. For example, endorsements may be required to engage in towed water sports. However, even if the case can be made for new endorsements it is not feasible to implement new endorsements in the short term (prior to 2011/12 boating season) due to the time required to put in place new training syllabus and testing procedures as well as ensuring that the training infrastructure and administrative systems that are necessary are in place.
- For these reasons, consideration of the merits of endorsement options is not included in this RIS. Instead an Options Paper for Marine Licensing in Victoria has been released for public consultation at the same time as this RIS. The purpose of the Options Paper is to canvass specific options for prescribed types of tests and training as well as options for licence endorsements. Included in this paper is DOT's analysis of the merits of each option.

*Question: Do you support increasing licensing requirements for persons getting into recreational boating for the first time?*

*Question: Do you believe that lack of skill and experience is a cause of the increasing trend in hospital treated injuries?*

## Commercial certification (Chapter 7)

- › The new commercial certification requirements included in the *Marine Safety Act 2010* necessitate new regulations about the information that needs to be provided when applying for certification; and information to be included in the certificates. These regulations are largely of a procedural nature and do not have significant cost impacts.

*Question: Do you have any residual concerns about the new requirements that have been included in the Marine Safety Act 2010?*

- › The regulations propose that towage service providers will be required to consult with operational partners on operational procedures and assignment of towage vessels. This regulation has been prepared in response to concerns about the fragmentation of service delivery within ports.

*Question: Do you agree that there needs to be a greater coordination between parties involved in facilitating ship movements?*

- › Consultation in February 2011 raised concern over the transferability of safe operation certificates. Commercial vessel owners sought assurance that they could sell their business as a “going concern” with the appropriate certificates. The proposed regulations do not presently enable this, but subject to a change being made to the *Marine Safety Act 2010*, new regulations may be made to allow certificates to be transferred provided there is no change to business activities and systems. If the scope and nature of business activities change, new owners will need to seek a variation of certification.

*Question: Would a regulation that enables transfer of certification be sufficient if it allows certificates to be transferred provided the scope and nature of business activities do not change?*

## Certificates of competency (Chapter 8)

- › No changes to certificate of competency requirements are proposed. Commercial vessels will continue to be required to have masters and crew that are certified in accordance with Part D of the *National Standard for Commercial Vessels*.

*Question: Are there changes that you would like to see to the certificate of competency requirements?*

- › However, reforms to certificate of competency and other requirements are being proposed at the national level. Chapter 8 of this RIS provides a summary of these plus indications about this may affect certified masters and crew operating in Victoria.

*Question: How much interest is there in obtaining national certificates of competency?*

## Operation of vessels (Chapter 9)

- › Regulations requiring passengers to disembark from a vessel when refuelling at a pier, wharf or jetty are proposed to be extended so passengers can only board the vessel after the engine has been restarted. This recognises that the main risk of fire and explosion is during the restarting of the engine. There are tangible benefits associated with making this change. For example, adherence to this practice would have avoided the fatalities at Pier 35 in 2008. The additional costs involved have been estimated to be low.

*Question: Do you support the need to take such precautions when vessels are being refuelled?*

- › The proposed regulations enable specific requirements in the Prevention of Collisions Convention (COLREGs) to be enforced through use of infringement notices. For example, the requirement to have and use navigation lights. This change will provide the means for addressing unsafe practices such as persons fishing in shipping channels at night without using navigation lights.

*Question: Do you think that the enforcement of selected COLREG requirements using infringement notices will increase compliance with these basic requirements? If not, why? And what alternative action would you suggest?*

## Safety equipment for recreational vessels (Chapter 10 and 11)

- › Regulations currently require the wearing of Personal Flotation Devices (PFDs) at times of heightened risk. The definition of 'heightened risk' has been refined in the proposed regulations so this requirement can be enforced using infringement notices. This is critical in achieving higher PFD wear rates on vessels greater than 4.8 metres in length. The change also harmonises the definitions of heightened risk in NSW and Victoria.

*Question: The analysis in Chapter 10 indicates that the requirement that PFDs be carried and worn has resulted in significant net benefits since being introduced in 2005-06. Do you agree with the analysis and the conclusions reached?*

*Question: Do you think the more precise and clear specification of what constitutes 'heightened risk' will help improve compliance and safety outcomes?*

- › The proposed regulations provide people with flexibility to use modern equivalents as substitutes for safety equipment requirements specified in the past. Specifically, laser flares and hand held strobe lights can be used as substitutes for red flares and a GPS unit can be used as a substitute for a compass.

*Question: Chapter 11 outlines that it is possible to justify a continuation of safety equipment requirements if it is reasonable to expect that 1 in 150 vessel disablements requiring rescue services would have result in death(s) if the persons involved did not have the safety equipment needed to raise the alarm and preserve life until help arrived. Do you think it reasonable to expect this?*

*Question: Do you support the gradual introduction of modern equivalents for safety equipment that is currently required to be carried in different types of State waters (i.e. offshore, enclosed, inland)? Are there any other equivalents that you believe should be permitted?*

*Question: Are there any safety equipment requirements that you believe are unnecessary? Alternatively do you believe that additional safety equipment requirements should be added?*

- › The RIS also seeks comment on the merits of requiring all recreation vessels operating more than 2 NM offshore to have a VHF radio, instead of continuing to accept 27MHz radios as a 'marine radio'.

*Question: Do you support or oppose the proposal to cease permitting 27MHz radios to be accepted as satisfying the requirement to carry a 'marine radio'?*

## Compliance and enforcement (Chapter 12)

- › The regulations propose that a number of additional offences be enforced through the use of infringement offences. It is also proposed to increase some of the penalties that are applicable when infringement notices are issued. For example, to increase the penalty for causing or allowing the operation of an unregistered vessel from 1.2 to 5 penalty units. This is a significant change that is aimed at addressing a deliberate level of non-compliance with the most basic of requirements (i.e. registration and licensing).
- › However, in most cases, penalties will remain the same or only small increases will be made – for example, penalties for safe distances, speed restrictions and safe navigation offences will increase from 1.6 penalty units to 2 penalty units.

*Question: Do you believe the proposed increase in infringement notice penalties will be effective in improving compliance? If not, why? What alternative would you suggest?*

## Management of waterways (Chapter 13)

- › The proposed regulations specify that the time period the Safety Director has to oppose or require amendment to exemptions and exclusion zones being proposed by port of waterway managers (for the purpose of facilitating events or works) is 10 business days. This will provide certainty to event organisers or managers of projects (involving works on, over or under State waters) about the time which needs to be set aside to get exemptions and/or establish exclusion zones for the purpose of managing traffic around events and works.

## Safety standards for pilotage service providers (Chapter 14)

- › Prescriptive fatigue management requirements that currently apply to pilotage service providers will be replaced by a requirement to have a fatigue management program which satisfies the pilotage service provider's duty to ensure safety, so far as is reasonably practicable. Towage and pilotage service providers will also be required to have a drug and alcohol management policy.
- › These arrangements provide flexibility to vary from the maximum hours and minimum breaks specified in the international convention for *Standards of Training, Certification and Watchkeeping for Seafarers 1978* without removing the "safety net" function the convention serves, i.e. it will continue to serve as the point of reference against which fatigue management programs will be assessed.

## Accreditation of persons providing quasi-regulatory services (Chapter 15)

- › The proposed regulations enable persons to be accredited by the Safety Director to fulfil certain quasi-regulatory functions, for example (a) to act as a training service provider and administer marine licence tests; (b) to verify vessel registration details; or (c) to assess compliance with vessel standards or vessel maintenance requirements. It is not economic for Transport Safety Victoria (TSV) to retain sufficient capabilities in these areas on an on-going basis.

## Prescribed fees (Chapter 16)

- › Fees will remain unchanged from the current levels specified in the *Marine Regulations 2009*. However, fees are required to be reviewed in 2012, as indicated in the proposed expiry regulation.
- › A separate set of proposed fee regulations and a separate fee RIS will be released in 2012 for public consultation.
- › Chapter 16 provides an overview of the aggregate costs of marine safety regulation and the revenues which are generated by fees. Some comments are made about the level of cost recovery which is achieved.

## Summary of estimated costs and benefits

The following table summarises the estimated costs and benefits of proposed regulatory changes that are expected to have significant impacts.<sup>1</sup>

**Table 1 – Summary of estimated costs and benefits for proposed regulatory changes of significance**

Proposed regulatory change	Estimated costs (\$) in present value terms over 10 year life of regulations	Estimated benefits (\$) in present value terms over 10 year life of regulations	Explanatory note
Requirement for vessels to be fitted with HINs and for vessel registration details to be verified	12.4 million	12.4 million +	Based on experience in other jurisdictions, DOT believes that the vessel recovery rate will at least increase by 12.5% so that benefits outweigh costs
Establishment of 3 year renewal cycle for vessel registration (instead of current annual requirement)	2 million	8.5 million	A cost of 2 million is speculative because the extent of system changes required is uncertain. Estimated benefits are actually 12.6 million but it is assumed here that the proposed change will not be made until year 3
Establishment of 5 year licence period for marine licences (i.e. elimination of choice)	1.5 million	15.4 million	Cost includes the additional number of refund transactions which are expected to be associated with the longer licence period
<b>Total</b>	<b>15.9 million</b>	<b>36.3 million</b>	<b>Net benefit of: \$20.4 million</b>

While these estimates clearly indicate that there is expected to be significant net benefits associated with the proposed regulation changes, this does not provide a complete picture. There are a number of requirements which are proposed to be continued which impose significant costs (and generate significant benefits) as indicated in Table 2.

<sup>1</sup> A proposed statutory rule is significant if it imposes (a) a measurable cost impact on any sector of the public of greater than \$500,000 per year; (b) other significant but non-quantifiable costs; (c) significant penalties for non-compliance; or (d) impacts on individual rights and liberties.

**Table 2 – Summary of estimated costs and benefits for regulatory requirements of significance that are proposed to be continued**

Proposed regulatory change	Estimated costs (\$) in present value terms over 10 year life of regulations	Estimated benefits (\$) in present value terms over 10 year life of regulations	Explanatory note
Exemptions from registration requirement	Reduced enforcement efficacy	5.6 million	Benefit is costs of vessel registrations avoided. One-off cost of approximately 2 million and ongoing costs of approximately 0.5 million p.a.
PWC endorsement	4.3 million	4.3 million +	Research shows 15% knowledge improvement from training and testing. DOT believes that it is reasonable to expect that at least 3-3.4% fewer PWC injury incidents would result in the future if the PWC endorsement requirement is continued (this is what is required for benefits to outweigh costs)
Mandatory carriage and wearing of PFD (in specified circumstances)	93 million	166 million	Conservative estimate of benefits because only projects forward the continuation of benefits observed since mandatory wearing requirements were introduced (2005)
Mandatory carriage of other safety equipment	209 million	209 million +	Over 900 vessel disablements occur each year that require assistance and/or rescue. Costs can be justified if it reasonable to expect that, without the safety equipment which is needed to “raise the alarm”, 0.5% of these incidents would have resulted in death.
<b>Total</b>	<b>\$312.2 million</b>	<b>\$383.5 million</b>	<b>Net benefits in the order of: \$71.3 million</b>

Based on the consideration of those regulations which impose significant costs (and generate significant benefits), there is a clear expectation that the proposed regulations will generate net benefits and therefore can be justified.

Clearly a key presumption underpinning some of the items referred to in Table 1 and Table 2 is DOT's judgement about the likelihood of the break-even conditions being satisfied. One of the primary purposes of consultation is to receive feedback on the validity of such judgements.

Another important observation to make in relation to Table 2 is that even when no changes are being proposed to the status quo there is significant merit in reconsidering the case for continuing existing regulatory requirements. As demonstrated, a significant proportion of the on-going regulatory burden is associated with the continuation of existing regulatory requirements. In particular, the analysis indicates that there are potentially significant gains to be made by reducing the capital and lifecycle costs of safety equipment. This is why comment is sought on feasible alternatives and equivalent substitutes to existing safety equipment. The proposed regulations enable two relatively new alternatives to be used. It envisaged that other options are also worthy of further consideration.







# 1. Introduction

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The purpose of the *Marine Safety Act 2010* (the Act) is to 'provide for safe marine operations' in Victoria (section 1) which includes providing for the safe operation of vessels and for the safety of marine safety infrastructure and operations involving its use. The Act provides for safety by (among other things):


- imposing a range of safety duties on –
  - owners, managers, designers, manufacturers, suppliers of vessels, marine safety infrastructure and marine safety equipment;
  - marine safety workers;
  - masters and users of recreational vessels; and
  - passengers on vessels;
- providing for the registration of vessels;
- providing for the licensing of masters of recreational vessels and hire and drive vessels;
- providing for the regulation and management of the use of, and navigation of vessels on, State waters;
- requiring port management bodies to engage harbour masters and providing for the licensing of persons to act as harbour masters and the authorisation of persons to act as assistant harbour masters;
- providing for the registration of pilotage service providers and the licensing of pilots;
- requiring the use of pilots in declared parts of State waters;
- requiring compliance with nationally agreed standards for commercial vessels and commercial vessel operations and providing for verification of compliance through certification; and
- requiring compliance with nationally agreed standards for masters and crew of commercial vessels and providing for verification of compliance through certification.

The proposed *Marine Safety Regulations 2011* have the same purpose as the Act. Regulations are proposed where necessary to give effect to the Act, for example, by supporting the operation of the licensing and registration requirements in Chapter 3 of the Act.

The *Subordinate Legislation Act 1994* governs the making of regulations (also referred to as 'statutory rules') and other subordinate instruments in Victoria. Its purpose is to ensure that the power to make subordinate legislation is exercised subject to:

- Parliament's authority and control; and
- public scrutiny.

The *Subordinate Legislation Act 1994* generally requires a Regulatory Impact Statement (RIS) to be prepared for each set of regulations or amendments proposed, and requires the release of the RIS for public consultation to ensure 'the need for, and the scope of, the proposed statutory rule is considered by any sector of the public on which an appreciable economic or social burden may be imposed by the proposed statutory rule'.



In accordance with the guidelines for RISs made under the *Subordinate Legislation Act 1994*, this RIS considers a zero or 'no regulation' base case.

For each set of regulations, there is a chapter in this RIS which:

- › sets out the nature and extent of the problem;
- › sets out the objectives of the proposed regulations;
- › identifies practicable means of achieving those objectives, including regulatory as well as non-regulatory options; and
- › provides an assessment of the costs and benefits of the proposed regulations and of any other practicable means of achieving the same objectives.

Comment is sought on the objectives, the options available to achieve these objectives and the relative merits of each option. In particular, comment is sought on whether the proposed regulations are supported, or if not, which alternative option is preferred and why?

Before considering the merits of regulatory objectives, proposed regulations and their alternatives it is necessary to firstly be aware of who has a stake in the management and use of Victoria's State waters, understand the review process that has been undertaken, the conclusions reached and the reforms that are proposed or are now being implemented. The rest of this Chapter 1 provides this background.

## 1.1 Marine stakeholders

The marine industry is of critical importance to the Victorian economy, contributing an estimated \$4.5 billion per annum and employing more than 7000 people in manufacturing, wholesaling and retailing. It also provides many thousands of Victorians with water-based recreation, which adds greatly to the high quality of life in the State.

Victoria has approximately 1200 kilometres of ocean coastline and 2100 square kilometres of inland and enclosed waters. Marine activity in Victoria includes:

- › approximately 9600 shipping movements annually to and from the commercial ports;
- › the day to day operations of over 1400 domestic commercial vessels, among them charter boats, ferries, tugs, barges, work boats, fishing vessels, and hire and drive boats;
- › largely seasonal use of 170,000+ registered powered recreational vessels; and
- › the operations of an estimated 35,000+ wind and human powered vessels.

This activity takes place on waters managed by four commercial ports, 13 local ports, 58 inland waterway managers and Transport Safety Victoria (TSV).

Victorians involved in marine activities within the State include:

- › approximately 17,000 commercially qualified persons, and
- › 300,000 recreational boat licence holders.

Hundreds of thousands of others participate in marine activities. However, there is no reliable data available to indicate the total percentage of Victorians who use vessels on State waters on an annual basis. Nevertheless, the concentration of the Victorian population around the bays, along the coast line and adjacent to Victoria's main inland waterways indicates that the majority of the population have a stake and interest in the safe, efficient and sustainable management of Victoria's State waters – if only as an occasional swimmer or nearby land owner.

## 1.2 Review of the *Marine Act 1988*

Best practice approaches to regulation require that legislation should be systematically maintained and reviewed, to ensure that over time it remains relevant, efficient and effective.

The current *Marine Act 1988* is the product of the last major transport legislation review conducted in the late 1980s and has remained largely unchanged over the ensuing 20 years. Since that time there have been a number of critical changes in the marine sector, including:

- sustained growth in international shipping, commercial intrastate vessel activity and recreational boating;
- sustained drought which for a number of years made inland waters more dangerous, reduced the size of many water bodies and forced some inland boating activity into bays and coastal waters, amplifying the congestion experienced in popular locations;
- developments in technology leading to the construction of vessels capable of very high speeds and rapid manoeuvrability;
- a changing profile of vessel operators, from those used to safe operating practices based on experience, to a new generation of operators with little or no experience and who in some cases expect instant access to craft and waters; and
- increasing evidence of dangerous “hoon” behaviour in the recreational sector.

These factors have led to material changes in the risk profile. Accordingly, it was reasonable to pose the question – do the legislative settings enable the government and the regulator to respond to risks? Reviews (focusing on specific issues such as pilotage) and coronial inquests (following deaths resulting from marine safety incidents) also pointed to the need for marine safety regulation reform.

The Department of Transport (DOT) commenced its review of the *Marine Act 1988* in 2009 with the aim of replacing it with a new marine safety statute in 2010.

This process included the public release of a major discussion paper entitled *Improving Marine Safety in Victoria* in July 2009 and the conduct of a substantial number of community consultation forums across Victoria between July and September 2009. DOT received over 400 submissions on the discussion paper.

Between October and December 2009 DOT undertook a series of follow up consultations with those who made submissions.

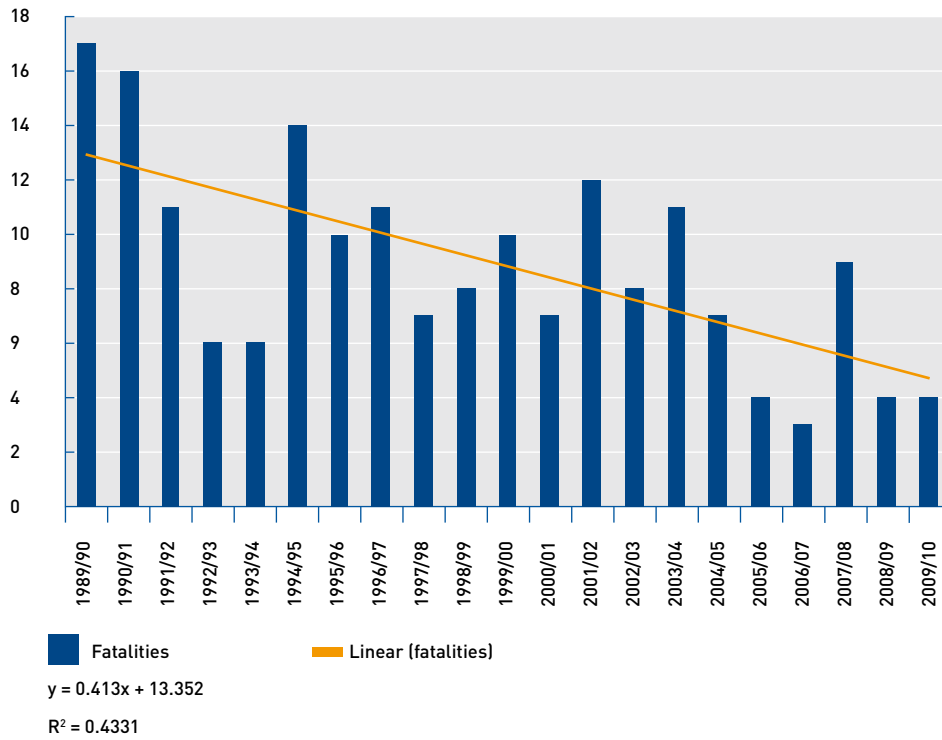
## 1.3 Findings of the review

Overall the review found that the sector generally operates safely. Importantly, there has been a reduction in the number of marine related deaths over the last decade. In the period 2003-04 to 2009-10, there was only one death in the commercial sector (in 2004-05)<sup>1</sup>. For recreational boating, over the past 10 years there has been an average of 6.9 deaths a year in Victoria. In the last 5 years (despite continued growth in the sector), this number has dropped to 4.8 deaths a year on average<sup>2</sup>.

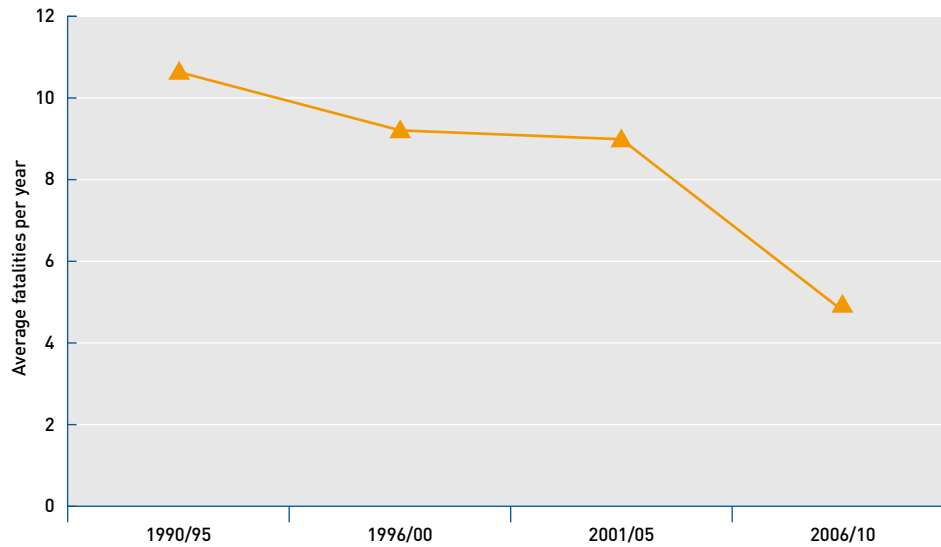
<sup>1</sup> In 2010/11 there was one fatality associated with the operation of a commercial vessel.

<sup>2</sup> In 2010/11 there were 6 fatalities associated with the operation of recreational vessels.

Graph 1.1 – Recreational boating fatalities in Victoria for 1989-90 to 2009-10



Graph 1.2 – Change in 5 year averages for recreational boating fatalities in Victoria



Source: Victorian Admitted Episodes Dataset

Note: Chapter 2 provides more data on safety trends and performance as well as providing insight into data limitations.

However, there has been an upward trend in the numbers of incidents and injuries in the recreational sector. In particular, hospital-treated injuries associated with recreational boating have doubled over the period from 2003-04 to 2009-10.

A finding of the review was that one of the key factors leading to worsening safety outcomes (specifically injuries) is the increasing level of congestion on waterways due to sustained growth in shipping, other commercial traffic and recreational boating activities, which was further exacerbated at the time of the review by shrinkage of inland waters due to drought. Low water levels exposed an increasing number of hazards to navigation which were previously hidden and of no concern. These changing circumstances were reflected in the increasing incidence of collisions between vessels and objects as well as rising numbers of "near misses".

Navigation and other rules (e.g. speed limits) are designed to provide a level of protection against the risk of these types of event. A clear conclusion is that it will be critically important to improve the level of compliance with marine safety laws in the future to address the risk and the increasing occurrence of collisions and associated incidents.

A key indicator of the increasing risk of further fatalities is vessel disablements, which increased from 586 in 2003-04 to approximately 1000 in 2009-10. The most common causes were machinery, electrical equipment and related human failures such as inadequate maintenance, lack of fuel and errors of judgment. It is the combination of vessel disablements, changing weather conditions, offshore operations and inadequate safety equipment (radio, PFDs etc) that has proved fatal in the past. A clear conclusion reached is that Victoria needs to remain focused on trying to address the causes of vessel disablements as well as maintaining means to mitigate their consequences (e.g. through the carriage of safety equipment and retention of search and rescue capabilities).

The main conclusion arising from the review is that there is no need to make revolutionary change to Victoria's legislative setting in this area, but, there is an opportunity to make some improvements. Importantly, there is a need to make a proportionate response to changes in safety risks. This should include changes that have been observed as well as future changes that are foreseeable, for example the return of water to our inland lakes, reservoirs and rivers due to the easing of the drought.

## 1.4 The Government response

Following community consultation, plans for the *Marine Safety Bill*, focusing on key areas where reforms were proposed, were outlined to representatives of key stakeholder groups in March 2010. The plans were generally well received and feedback provided indicated strong support for proposed initiatives.

The *Marine Safety Bill* was introduced into the Victorian Parliament on 11 August 2010 and received broad support, subject to some small amendments in the Upper House. The Bill was passed by the Victorian Parliament on 17 September 2010, became an Act on 28 September 2010 after it received the Royal Assent and is now known as the *Marine Safety Act 2010*.

The *Marine Safety Act 2010* is currently intended to come into operation through proclamation on 1 December 2011, for the commencement of the 2011/12 boating season. However, the proposed regulations to which this RIS relates need to be made before the new Act can commence. Accordingly, there are significant opportunities for marine stakeholders with interests or concerns to participate in resolving the details of proposed reforms through the making of the regulations. Have your say! Refer to section 1.6 below to find out how.

## 1.5 Marine Safety Act 2010

The reforms incorporated in the *Marine Safety Act 2010* (the Act) are explained in detail in Technical Paper 1. In summary, the reforms incorporated in the Act are aimed at the following:

- › Matching safety requirements so far as is reasonably practicable to safety risks;
- › Making clear the accountabilities of parties who have a level of influence and control over marine safety outcomes, including some that the marine safety regulator has previously had limited capacity to enforce (e.g. safety duties of designers, manufacturers and suppliers of vessels and equipment, port management bodies and crew and passengers on recreational vessels);
- › Enabling existing requirements to be enforced more effectively and efficiently (e.g. owner onus, requirement to establish, implement and maintain a State-wide marine enforcement policy);
- › Providing scope to sanction unacceptable behaviours to the extent sufficient to deter them (e.g. increased penalties where necessary, greater clarity regarding capacity to take disciplinary action);
- › Enhancing harmonisation with international practice (e.g. pilotage) and national approaches (e.g. dual certification, risk based survey);
- › Enabling targeted regulatory interventions (through the making of regulations) which operate to ensure that the master and crew are competent and that the vessel is safe;
- › Placing appropriate “checks and balances” on the use of regulatory discretions and providing for improved transparency of decision making (e.g. codification of waterway rule making process); and
- › Improving safety management and accountability arrangements for Victorian waterways and ports.

Given the largely incremental nature of the changes proposed, the estimated costs of the Act were previously assessed as modest, having a present value of \$4.1 million over 10 years. However, it was acknowledged that reforms proposed to be given effect by the regulations could potentially impose more significant costs, depending on, in particular, the range of licensing reforms which could be adopted. The upper estimate of additional costs which may be imposed (subject to the making of regulations) was \$32.5 million in present value terms over a 10 year period. This RIS reconsiders the potential quantum of these impacts.

This RIS considers all the potential incremental costs associated with implementing the proposed regulations as well as examining whether existing regulations which are proposed to be re-made can be justified. This RIS seeks to demonstrate that regulations are only proposed to be made in areas where there is a reasonable expectation that the benefits of making and enforcing the regulations exceed the costs imposed.

## 1.6 Structure of RIS and how you can have your say

Given the large variety of matters dealt with in the proposed *Marine Safety Regulations 2011*, this RIS has been drafted in chapters. Chapters 2 and 3 set the scene by explaining, in broad terms, the nature and extent of the problem that the proposed regulations are aimed at addressing as well as summarising the changes from the *Marine Regulations 2009* which are incorporated in the proposed regulations.

Chapters 4 to 15 describe and explain discrete parts of the proposed regulations and present the assessment of benefits and costs for the relevant regulations as well as for feasible alternatives. The following common sets of headings are generally used in each of the chapters:

- › The nature and extent of specific problems.
- › Objective(s) of the proposed regulations.
- › The “base case”.
- › Identification of feasible options .
- › Assessment of costs and benefits.
- › Conclusions.
- › Summary of the proposed regulations.



This approach (i.e. common headings) has been adopted to ensure that each chapter addresses those matters which the *Victorian Guide to Regulation* requires to be assessed.

Chapter 16 presents an overview of the aggregate costs of marine safety regulation and the level of cost recovery currently being achieved through the charging of fees. Fees specified in the proposed regulations are unchanged from those currently specified in the *Marine Regulations 2009*. That is, the proposed regulations do not increase any current fees or seek to implement any new fees. However, stakeholders should note that the fee structure and the fee levels are required to be reviewed in 2012.

Chapter 17 explains the implementation and enforcement strategy for the new Act and the proposed regulations.

Chapter 18 presents the assessment of the proposed regulations against the relevant national competition principles.

Chapter 19 reports on the consultation undertaken as part of the Marine Safety Reform process and specifically in relation to the proposed regulations. It also explains how stakeholder views have been taken into account and how proposals have changed.

Feedback is sought on whether assumptions adopted are reasonable, whether the method of analysis is valid and whether there has been sufficient consideration of feasible alternatives. Most importantly, feedback is sought on the merit of the proposed regulations, that is:

- Do you support the proposed regulations?
- If not, why?
- What alternative (if any) would you propose?

Specific consultation questions are posed throughout this RIS.

In order to keep this RIS to a reasonable size, some of the analysis undertaken in each of the chapters has been summarised. Full analysis is provided in a series of accompanying Technical Papers. Copies of the Technical Papers (as well as this RIS, the draft regulations and other supporting documents) are available at [www.transport.vic.gov.au/legislation](http://www.transport.vic.gov.au/legislation).

Submissions are required to be made in writing and can be emailed to [marinesafetyregulations@transport.vic.gov.au](mailto:marinesafetyregulations@transport.vic.gov.au) or posted to:

Mr Paul Salter  
Project Manager, Marine Safety Reforms  
Regulatory Policy and Legislation Branch  
DOT Legal  
GPO Box 2797  
Melbourne VIC 3001  
Australia

Please note that all submissions will be treated as public information unless you request otherwise.

Submissions will be published on the Department of Transport website unless you clearly indicate that you would like all or part of your submission not to be published.

Any content considered to be defamatory, vilifying or otherwise inappropriate will not be published.

You should be aware that all submissions are subject to the *Freedom of Information Act 1982*.

Personal information may be used to contact you regarding your submission and/or the outcomes of the consultation. Please clearly state in your submission if you do not wish for this to occur.

## 1.7 Concurrent national project

In July 2009, the Council of Australian Governments (COAG) agreed to the establishment of a national system for the safety regulation of all commercial vessels in Australian waters, with the Australian Maritime Safety Authority (AMSA) to act as the national regulator. The Australian Transport Council (ATC) agreed to the administrative and legislative arrangements for the proposal in September 2010. COAG has subsequently asked for an inter-governmental agreement to be entered into by July 2011.

Given the foreseeability of this national development, queries have been raised about why the *Marine Safety Act 2010* includes reforms to commercial certification requirements. Some stakeholders are concerned that one "wave" of reform may be followed by another.

The transfer of regulatory responsibilities from TSV to AMSA will not occur until at least 2013. The *Marine Safety Act 2010* is planned to commence before the end of 2011. There is a gap in time which needs to be covered, and there is benefit in making incremental changes during this period in order to better manage latent potential for accidents in the commercial sector.

The dual certification approach that Victoria has adopted in the *Marine Safety Act 2010* is consistent with the reforms in the National Standard for Administration of Marine Safety (NSAMS) approved by the ATC in November 2009. It is also consistent with the approach adopted in the "regulatory plan" released for public consultation by AMSA and the drafting instructions for proposed national legislation to support the transfer of regulatory responsibility for commercial vessels from State and Territory marine safety regulators (such as TSV) to AMSA. It is also proposed that the national legislation include marine safety duties as found in the *Marine Safety Act 2010*.

The implementation of the *Marine Safety Act 2010* supports a smooth transition to any national arrangements.

Transitional provisions are expected to be included in the national legislation to ensure this is the case by, for example, not requiring vessels which come under Commonwealth jurisdiction to re-apply for construction certificates and safe operation certificates. Instead, existing certificates will be deemed to be valid under the proposed national legislation.

It is important to note that Victoria has raised a number of concerns about the proposed national scheme. These relate to scope, law making and standard setting, cost recovery implications and service delivery arrangements.

In regard to service delivery arrangements, AMSA proposes to use existing marine safety authorities in the States and Territories to fulfil regulatory functions AMSA may acquire under the new national legislation. This would be given effect through instruments of delegation and service delivery agreements. A key objective of the project is to improve consistency of regulatory practice.

These issues are outside the scope of the making of the *Marine Safety Regulations 2011* which are assessed in this RIS but are known to be of interest to marine industry stakeholders in Victoria.





## 2. Nature and extent of the problem

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*'From an economic perspective, freely functioning markets generally provide the most efficient means of allocating goods and services between members of the community so as to maximise the well-being of the community. The market mechanism is also generally the best means of ensuring that a good or service is produced efficiently. In addition to these allocation and production efficiencies, competitive markets encourage innovation and greater consumer choice, thereby maximising society's economic welfare.'*

– *Victorian Guide to Regulation 2007*, Department of Treasury and Finance, p2-1.

It is for these reasons that there is a presumption in favour of allowing resource allocation in the Australian and Victorian economies (including in relation to recreational activities) to be driven by choices of individuals interacting in the “marketplace”. The argument is that it is individuals who are best placed to know what maximises their utility and it is the individual who bears the consequences of his or her decisions. However –

*'In some instances, the market does not deliver the best outcomes for society – for example, because of the existence of market distortions or imperfections. In such cases, the market is said to be 'failing' and, in some circumstances, government intervention may be justified on the grounds that economic outcomes could be improved.'*

– *Victorian Guide to Regulation 2007*, Department of Treasury and Finance, p2-1.

Regulatory interventions are designed to produce an economic or social benefit by correcting 'market failures' caused by problems such as:

- imperfect information – for example, a widespread lack of understanding of the risks involved in undertaking an activity, leading to poor decision-making which distorts the quantity of the activity undertaken;
- the presence of 'externalities' – economic costs (such as those arising from deaths and injuries) which occur as a by-product of choices made, despite not being factored into that decision. If such costs were adequately factored into decision-making a lower quantity of the product or service would be produced and consumed and a lower level of externalities would be produced;
- monopoly power – exists when there are limited numbers of buyers or sellers who have market power and are able to use this (e.g. by reducing supply or demand) to extract 'excessive' profits. The problem is not the existence of excessive profits per se, but the lower level of production and consumption than should have been the case; and
- public goods – produce benefits which can be readily accessed by all without diminishing each others' enjoyment; but, it is not cost effective or practicable to monitor and charge for use of the goods. As a result, public goods may not be provided by the market, or will be under-provided, unless governments intervene.

The presence of factors (such as those listed above) which cause markets to fail to produce an efficient outcome may provide a justification for making a regulatory intervention. However, the mere identification of a market failure is not a sufficient justification for regulatory intervention. It needs to be demonstrated that the 'benefit' (e.g. a reduction in deaths and injuries) outweighs the 'costs' (i.e. the regulatory burden).

It is only in such circumstances that there can be a level of confidence that the outcomes of regulation will be to produce a more economically efficient outcome.

## 2.1 Do 'market failures' exist in marine safety?

In the marine safety context it is clear that two causes of market failure exist:

- › imperfect information; and
- › externalities.

### 2.1.1 Imperfect information

Imperfect information leads to sub-optimal decisions. In the safety context, the problem occurs when people take decisions that they would not take if they were aware of the potential outcomes. When an unintended death occurs, for example, it is evident that there was imperfect information – because it would be irrational to assume that decisions would be made where the known consequence was death.

Imperfect information can take many forms ranging from straightforward lack of knowledge about the risks of an action to the difficulty in distinguishing very low probabilities from zero – which is a significant problem evident in the marine sector irrespective of the level of experience of the master:

*'When anyone asks how I can best describe my experience in nearly 40 years at sea, I merely say, uneventful. Of course there have been winter gales, and storms and fog the like, but in all my experience, I have never been in any accident of any sort worth speaking about... I never saw a wreck and never have been wrecked, nor was I ever in any predicament that threatened to end in disaster of any sort... I cannot imagine any condition which would cause a ship to founder. I cannot conceive of any vital disaster happening to this vessel. Modern ship building has gone beyond that.'*

– Captain Edward J Smith, Commander of Titanic (before its sinking)

There were 44 fatal recreational boating incidents which resulted in drowning(s) between 2001-02 and 2009-10. In only 10 of these incidents was there any reason to believe that the master was inexperienced and that this contributed to the occurrence of the incident and the outcome. Moreover, "errors in judgement" by experienced masters have been identified as one of the most significant contributing factors. The masters of the vessels involved in these fatal incidents almost certainly had an awareness of sources of risk (i.e. causes of incidents), but may have under-appreciated the likelihood of all the relevant causes occurring simultaneously (which is generally low, but greater than zero). Such an under-appreciation of risk affects the decisions which can be made to avoid an incident ("defences or preventions") as well as measures that can be taken to mitigate the consequences of the incident or event that poses harm.

A further source of imperfect information is information asymmetries. Information asymmetries arise where one party to a transaction possesses substantially greater information of relevance than the other party and it is not practicable, in economic terms, for the latter party to acquire the necessary information. In the presence of information asymmetry voluntary choices may not lead to mutually beneficial (and therefore economically efficient) outcomes.

Information asymmetries arise in the commercial boating sector where, for example, passengers on commercial vessels would be unable to form sound judgements on issues such as the seaworthiness and state of maintenance of those vessels or the competence of crew members and adequacy of the crew complement. While safety performance can, to some extent, be expected to be reflected in an operator's reputation in the community, thus providing some information to consumers, this is a mechanism which is often unreliable and which is unlikely to be sufficient to guide efficient consumer choice in the absence of regulation.

### 2.1.2 Externalities

As is the case with many other transport modes, the issue of externalities is a significant one in marine safety and constitutes an important part of the overall justification for regulation. Generally speaking, the potential for an externality arises when unsafe behaviour on the part of one waterway user causes a risk of harm to other waterway users. This issue can clearly arise in both recreational and commercial boating sectors and can arise in a number of different, specific contexts. For example:

- › unsafe behaviour on the part of a boat captain or crew member imposes risks on passengers on that boat;
- › the same or different unsafe behaviour may also pose risks for passengers on other boats, users of other watercraft, or swimmers/surfers;

- › poor design and/or construction standards with respect to watercraft will create unnecessary risks for purchasers of those craft;
- › poor maintenance practices will create unnecessary risks for boat users; and
- › search and rescue costs which may be borne by government, voluntary organisations, or a combination of the two. These costs also inevitably entail personal risks borne by employees of search and rescue services (including volunteers).

It is evident from the above examples that, in many cases, the size of these externalities could be substantial. For example, large boats may carry many passengers, all of whom may be placed at risk by unsafe behaviour on the part of the vessel's master or members of the vessel's crew. Equally, a boat which carries few people may still endanger large numbers of people if unsafe behaviour by its captain gives rise, for example, to the risk of collision with other boats.

## 2.2 Extent of the problem

As indicated in Chapter 1, hundreds of thousands of members of the Victorian community are directly involved in marine activities from time to time. All of these people, plus the many others who swim in Victorian waterways, are potentially affected by decisions made by persons operating vessels.

The extent of the problem is the extent to which externalities and under-appreciation of risk distort decision making and the outcomes which occur as a result of those decisions (deaths, injuries, property damage, search and rescue costs, etc).

But how can such distortions be measured?

The point of reference has to be what decisions would have been made in the absence of regulation. However, marine safety regulation dates back to 1898 in Victoria and at the Commonwealth level the *Navigation Act 1912* is quickly approaching its centenary. Information on marine safety outcomes achieved in the times before such regulatory arrangements were established is not available.

Even if it was, the usefulness of being able to make observations about decisions made in 1898 is highly questionable:

- › powered recreational vessels of the type that are commonly used today did not exist in those times;
- › Victoria's population has grown substantially and this has resulted in many competing demands for the use of key waterways in the State; and
- › recreational activities which did not exist previously (e.g. towed water sports) are now very popular.

Suffice to say that circumstances have changed considerably since those times.

For these reasons it is not possible to identify and measure the extent of the distortions caused by "externalities" and "imperfect information" because present outcomes are a product of many types of regulatory interventions which are aimed at addressing these distortions.

Given the impediments to measuring the extent of the problem in the present day the approach generally adopted is to consider:

- › the underlying risks of different types of marine incidents, i.e. causes and possible defences, foreseeable consequences and possible mitigations;
- › the number of deaths and injuries that continue to occur (i.e. how successful have current regulations been? What level of residual risk continues to persist?);
- › the extent to which the occurrence of incidents can be attributed to externalities and/or imperfect information; and
- › the extent to which outcomes could have been worse had there been no regulations in place which required certain considerations to be made and actions to be taken.

As will be seen in the chapters to follow, the latter point is the starting point. That is:

- › what is likely to happen if no regulations are made?
- › how would behaviour change and what impact would this have on safety outcomes?

The *Victorian Guide to Regulation* requires this approach to be adopted because it forces a consideration of whether any regulatory intervention can be justified.

The sections which follow provide an overview of the number of deaths and injuries associated with commercial marine and recreational boating operations in Victoria in recent years. This information is intended to be contextual given that each chapter will provide more detailed information on the nature and extent of specific problems which the proposed regulations are aimed at addressing. Nevertheless, this information should provide some insight into the residual safety risks which exist and the harms which continue to be borne.

### 2.2.1 Data sources

The data available to support the analysis of the extent of problems is limited. There are four major sources. Coronial data is the most comprehensive and most useful source in explaining the circumstances surrounding fatal incidents as well as identifying causal factors. The marine incident database maintained by TSV is also useful in showcasing the types of incidents which occur as well as identifying causal factors. However, this database is of limited use in monitoring trends because reporting requirements are focussed on more severe incidents. Less data is captured in relation to incidents resulting in minor injury or property damage.

Records of incidents which do not result in injury or property damage but do require assistance or rescue services are available to a reasonable extent from the Water Police, the volunteer coast guard and other parties. However, there are many incidents which are typically not recorded, such as vessel disablements where assistance is provided by boats in close proximity.

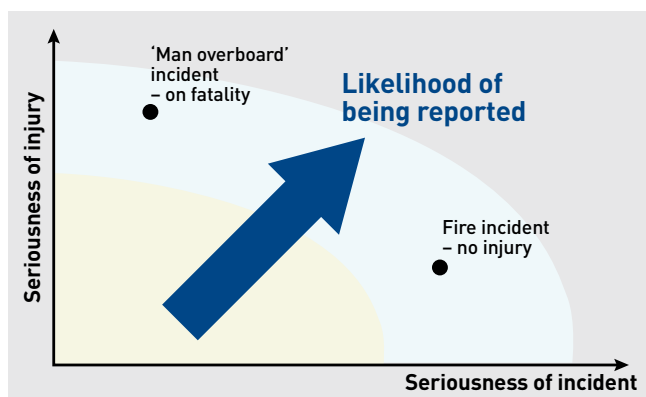
The third source of information is emergency presentations and hospital admissions data. This fills in some of the gaps by providing a more complete picture of the frequency of incidents resulting in personal injury as well as providing information on the severity of the injuries sustained, for example, by reference to the length of hospital stays. The drawback of this data source is that it provides limited data on causal factors. Some information may be recorded but this is dependent on individual hospital staff and procedures.

The fourth source of data is that held by insurance companies. Boats and other vessels are expensive assets which have the potential to cause significant public liabilities. Accordingly, owners and operators of these vessels have an incentive to maintain insurance policies. However, data made available to DOT indicates that approximately 55-60% of powered recreational vessels in Victoria are not insured.

The main value of insurance data is that it provides insight into the level of property damage sustained as a result of incidents – this information is not available through any other source. It also provides a more complete picture of the number of incidents. However, confidentiality requirements mean that access to more detailed information on causal factors of incidents is limited.

In summary, there are limits on the data available to aid understanding of the nature and extent of marine safety problems and to inform decision making on the efficacy and merit of options to address these problems. A high level of confidence can be attached to information about fatalities and incidents resulting in serious injuries, but caution must be exercised when using data on minor injuries and property damage. It is likely that available data will under-estimate the number of minor injuries sustained as well as incidents which result in property damage.

Figure 2.1 - Likelihood of a boating incident being reported





## 2.2.2 Data on fatalities and injuries

The available data on the incidence of fatalities and injuries resulting from marine activities relates to the “residual risk” – that is, the level of risk which remains after intrinsic risks have been minimised through the application of a range of risk control measures, many of which are required by regulation. Thus, as is often the case in contexts where regulation has been in place for a considerable time, reference to the available data does not allow us to form a picture of the size of the underlying risks associated with these activities. Rather, it constitutes a picture of the size of the harms which remain in the context of the existing regulatory environment.

### Commercial vessels

Graph 2.2, below, sets out the number of fatalities in the commercial boating sector since 1989-90. A total of 25 fatalities have been recorded over the 19 year period, an average of 1.3 fatalities per annum. Unsurprisingly, there is substantial year-to-year variation in the number of deaths recorded. The low number of deaths makes it difficult to discern a clear trend in fatality numbers. However, it is notable that there have only been two deaths reported for commercial vessels since 2004-05. By contrast, there were ten fatalities in the first five years of the period graphed. Thus, while care in interpretation of the data is needed, it appears that the number of fatalities in the commercial sector has tended to decline in recent years.

Graph 2.2 – Commercial vessel fatalities 1989-90 to 2009-10



### Injuries

Over the seven years to 2009-10 the commercial shipping sector reported one death, 135 injuries, 10 lost vessels and approximately 100 incidents resulting in vessel or property damage. In addition, there have been over 200 vessel disablements reported during this period (noting that there is likely to be under-reporting of such incidents).

Analysis of available data indicates that there is no obvious trend in incidents occasioning actual harm (i.e. collisions, etc). In fact, the MUARC report argues that the observed variances in the number of reported incidents essentially reflect improved data capture, rather than any underlying improvement or deterioration in safety performance:

*‘Since 2004-5 frequency of reported commercial and recreational vessel incidents has steadily increased, probably reflecting improved reporting rather than a real increase in incidents.’ (MUARC (2009), p 19).*

“Human factors” are the main causes of incidents in the commercial sector (refer to Table 2.3 below).

Table 2.3 – Factors contributing to serious incidents involving commercial incidents 2008-09

Contributory factors	N	%
<b>Human factors</b>		
Errors of judgement	12	22
Navigational error	3	5
Inexperience	3	5
Insecure mooring	3	5
Failure to keep proper lookout	2	4
Alcohol or drugs	1	2
Ill health	1	2
Fatigue	1	2
Excessive speed	1	2
Other human factors	2	4
<b>Sub total</b>	<b>29</b>	<b>53</b>
<b>Environmental factors</b>		
Wind/sea state	10	18
Tidal conditions	4	7
Wash	3	5
Restricted visibility	1	2
Other environmental factors	–	–
<b>Sub total</b>	<b>18</b>	<b>33</b>
<b>Material factors</b>		
Electrical equipment	2	4
Navigational equipment	2	4
Machinery	1	2
Other material factors	3	5
<b>Sub total</b>	<b>8</b>	<b>15</b>
<b>TOTAL</b>	<b>55</b>	<b>100</b>

At the national level, repeated studies undertaken by the National Maritime Safety Committee have shown that approximately 70% of commercial vessel incidents are a result of human error. Recognising that human error is inevitable, new national requirements and standards which are progressively being implemented require commercial vessel owners to assess the extent to which the elimination or minimisation of risk is dependent on human based measures. Commercial vessel owners are being asked to consider the extent to which tolerance of human error needs to be built into operational procedures and processes for the purpose of ensuring safety, so far as is reasonably practicable (which is the statutory duty of care owed).

It is worthwhile noting that, despite onerous annual survey processes being in place, material factors continue to cause a reasonable proportion of commercial vessel incidents. This is particularly so, when so called “response only” incidents are taken into account. In the 2008-09 year, there were 29 such incidents – all of which were vessel disablements. While these incidents did not cause injury or property damage, they indicate the condition of the fleet and provide some insight into the underlying potential for serious incidents to occur.

#### Summary

The conclusions arising from the review of the *Marine Act 1988* were that the safety performance of the commercial sector in Victoria was generally acceptable but that Victoria needed to be vigilant in monitoring compliance with, and enforcing, survey and certificate of competency requirements. Furthermore, Victoria should proceed with:

- implementing national agreed standards for safety management systems; and
- enabling the marine safety regulator to monitor compliance with (and enforce) OHS duties to ensure safety, so far as is reasonably practicable.

These initiatives will provide the stimulus to improve the operational procedures which can be used to prevent human error or otherwise mitigate its consequences.

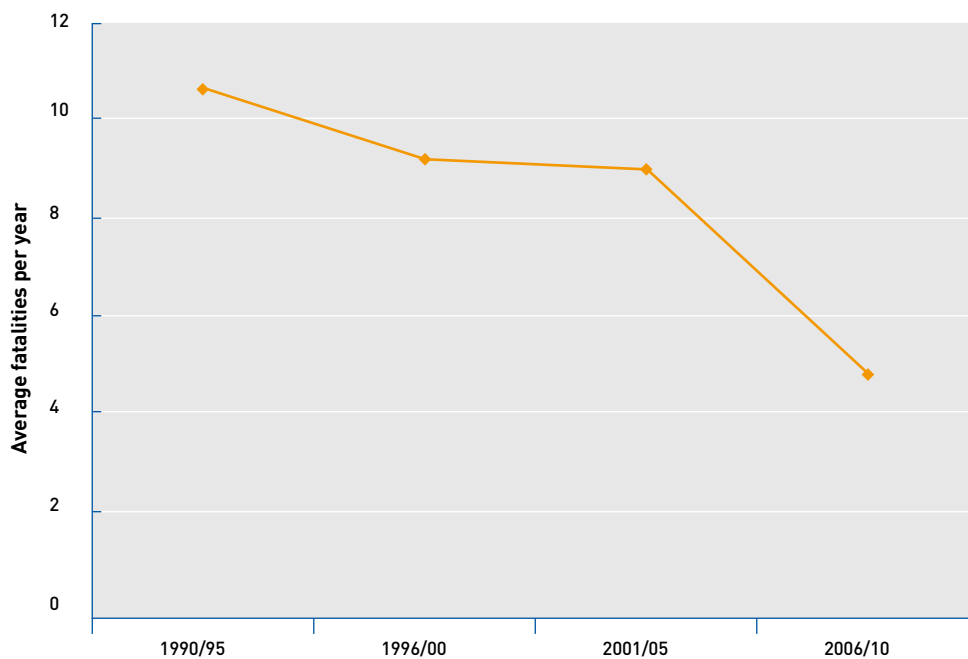
### Recreational vessels

A total of 190 fatalities were recorded over the 21 year period to 2009-10, compared with 25 fatalities recorded in the commercial sector over the same period. The total of 190 fatalities is equivalent to approximately 9 fatalities per annum on average.

There is a clear downward trend over this period in the observed number of fatalities. As an indicator of this trend, the average number of fatalities recorded in the last five years (4.8) is less than half of the number recorded in the five years between 1990-91 and 1994-95 (10.6) – as shown in Graph 2.4.

When changes in the number of registered recreational vessels over the period are taken into account, the extent of the improvement in safety performance in respect of fatality numbers is shown to be even larger.

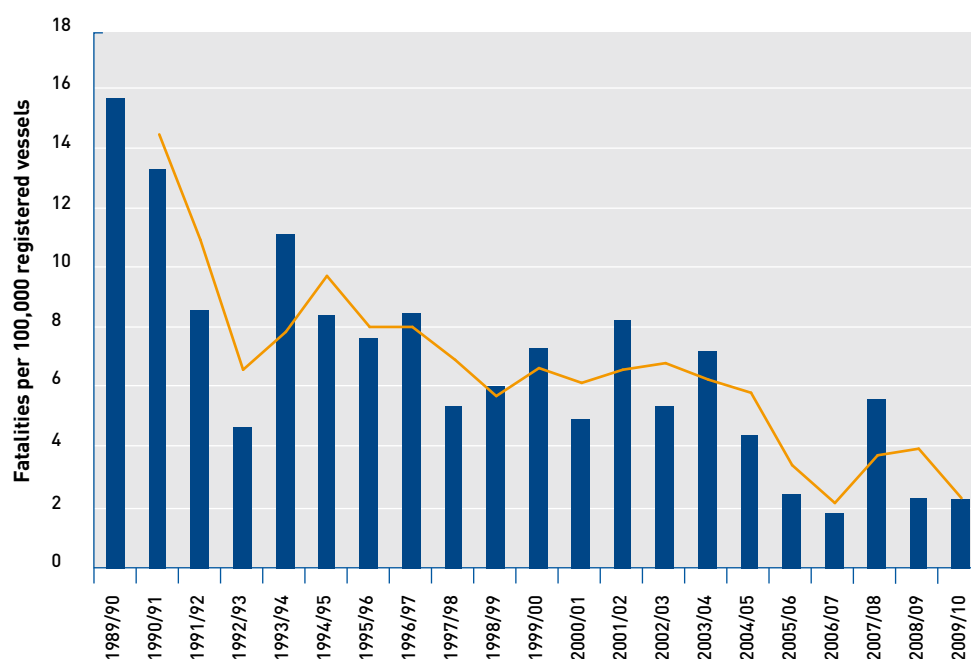
**Graph 2.4 – Change in 5 year averages for recreational boating fatalities in Victoria**



It should be noted that preliminary figures for 2010-11 recently became available. These figures show 6 possible marine fatalities in 2010-11. These fatalities are still under investigation as to cause, and have not been included in this analysis.

Graph 2.5, below, records the number of recreational boating related fatalities on the basis of fatalities per 100,000 registered recreational vessels. The average number of fatalities is 3.4 per 100,000 registered vessels during the most recent five years, compared with 9.3 in the first five years covered by the graph. This represents a decline of 63% in the fatality rate between these two periods.

Graph 2.5 – Recreational boating fatalities per 100,000 registered vessels



Of the 44 deaths associated with recreational boating in the five years to 2007-08, most (36) were caused by drowning. Impact injuries related to collisions (4) and burns (2) caused the remaining fatalities. Table 2.6 provides a breakdown of fatalities according to the kind of activity being undertaken.

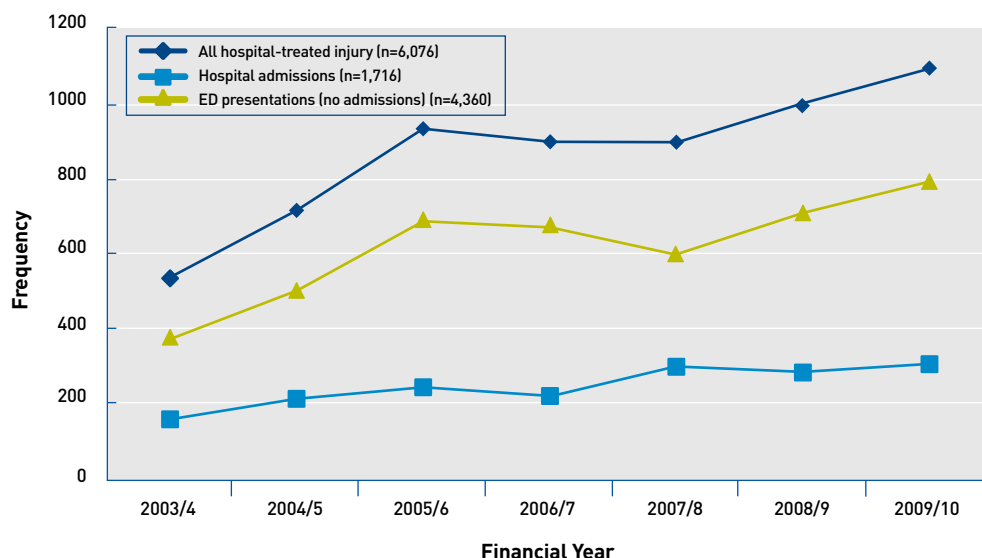
Table 2.6 – Ranking of boating-related recreational activities based on the frequency of fatalities Victoria 2003-04 to 2007-08

Watercraft/Activity	Deaths (NCIS) (n=31)	
	N	%
1. Fishing from a boat	16	52
2. Motor boating/boating unspecified	7	23
3. Sailing	4	12
4. Canoeing and Rowing	2	6
5. Personal Water Craft (PWC) riding	1	3
6. Wind/kite surfing	1	3
7. Water skiing and other towed sports	–	–

#### Injuries

The data suggests that the number of boating injuries as a result of recreational boating activity has risen significantly, in contrast to the fatalities trends noted above. Graph 2.7 shows the number of hospital treated recreational boating related injuries over the seven years to 2009-10.

Graph 2.7 – Hospital treated recreational boating injuries 2003-04 to 2009-10



Source: Victorian Admitted Episodes Dataset

Graph 2.7 shows that the number of hospital treated injuries resulting from recreational boating activity has risen by just over 100% over the period, from around 530 to 1100. Within this total, the number of hospital admissions has approximately doubled from around 150 in 2003-04 to 300 in 2009-10. Emergency department presentations not resulting in admissions have also risen significantly, from around 370 to 800 over the same period. The size of the increases, together with the relatively reliable nature of the databases employed, clearly suggests a worsening injury trend in recent years.

Table 2.8 – Ranking of boating related recreational activities based on the frequency of injury cases (2003/04 to 2009/10)

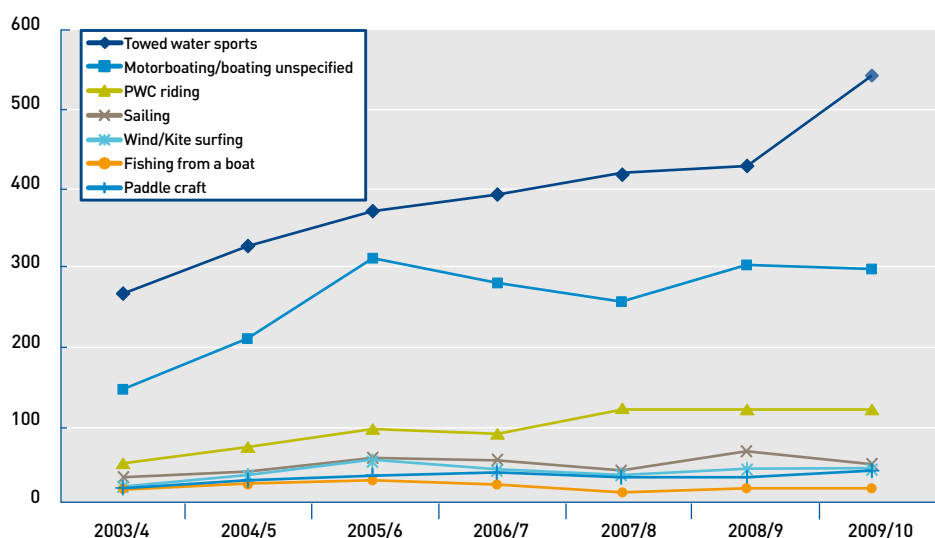
Activity	Hospital admissions		Emergency department presentations	
	Number	%	Number	%
Waterskiing and other towed sports	701	42%	2015	48%
Motor boating/boating unspecified	357	22%	1422	34%
Personal watercraft	292	18%	355	8%
Sailing	128	8%	199	5%
Wind/kite surfing	116	7%	134	3%
Fishing from a boat	56	3%	84	2%
<b>Total (2003-04 to 2009-10)</b>	<b>1650</b>		<b>4209</b>	

Source: Victorian Admitted Episodes Dataset

Table 2.8 provides a breakdown of the number of hospital treated injuries according to the type of recreational activity being undertaken at the time the injury was incurred. A fundamental observation is that the majority of hospital treated injuries arise from participation in high-speed watersports. In respect of hospital admissions, 42% arise from waterskiing and other towed sports, while a further 18% arise from the use of personal watercraft. Therefore, a minimum of 60% of hospital admissions result from participation in high-speed watersports and some part of the 22% of hospital admissions arising from motor boating would also fall within this category. Similarly, at least 56% of emergency department presentations result from high-speed watersports.

Graph 2.9 depicts the trend in recreational boating injury by activity type. Over the period considered it is clear that there has been a substantial increase in injuries associated with towed watersports, general motor boating and PWC use.

Graph 2.9 – Trend in hospital-treated recreational boating injury by activity (2003-04 to 2009-10)



Source: Victorian Admitted Episodes Dataset

Table 2.10, below, shows the length of hospital stays required as a result of recreational boating injuries incurred in 2008-09 and 2009-10. The table presents length of hospital stay relative to the activity in which the injury was sustained. The data suggests that the great majority of recreational boating related injuries are not particularly severe.

Table 2.10 – Recreational boating injury admissions by water activity type and length of hospital stay, 2008 to 2010

	Length of stay (days)									
	<2 days		2-7 days		8-30 days		31+ days		Total	
	N	%	N	%	N	%	N	%	N	%
Towed water sports	174	68	66	26	14	5	3	1	257	100
PWC riding	55	54	30	29	16	16	1	1	102	100
Boating unspecified	43	57	29	38	2	3	2	3	76	100
Yachting/sailing	26	58	17	38	2	4	0	0	45	100
Windsurfing/kitesurfing	19	49	17	44	3	8	0	0	39	100
Canoeing/kayaking	9	60	5	33	0	0	1	7	15	100
Fishing from a boat	7	54	5	39	1	8	0	0	13	100
Rowing/sculling	3	100	0	0	0	0	0	0	3	100
Other specified	17	45	17	45	4	10	0	0	38	100
<b>Total</b>	<b>353</b>	<b>60</b>	<b>186</b>	<b>32</b>	<b>42</b>	<b>7</b>	<b>7</b>	<b>1</b>	<b>588</b>	<b>100</b>

Source: Victorian Admitted Episodes Dataset


Consistent with the results for the preceding 5 year period only 8% of injuries resulted in a hospital stay of 8 or more days. It is noteworthy that a large proportion of PWC use related injuries resulted in hospital stays of 8-30 days. The severity of injuries sustained while using PWCs is distinctly higher than that sustained when engaging in other activities. This is reflected in the fact that for the last two years the number of hospital admissions associated with PWC use has increased to the extent that PWC is now ranked second, behind towed water sports, rather than third - which is the result when based on the 7 years of data available.

## Incidents

Table 2.11 provides an overview of the most frequent contributing factors for serious incidents occurring in Victoria's State waters.

**Table 2.11 – Factors contributing to recreational vessel serious incidents, Marine Incident Reporting system 2008-09**

Contributory factors	N	%
<b>Human factors</b>		
Errors of judgement	76	21.9
Inexperience	49	14.1
Navigational error	32	9.2
Failure to keep proper lookout 14	4.0	
Excessive speed	8	2.3
Lack of maintenence	8	2.3
Insecure mooring	5	1.4
Alcohol or drugs	5	1.4
Fatigue	3	0.9
Overloading	3	0.9
Unable to swim	2	0.6
Lack of fuel	2	0.6
Ill health	1	0.3
Other human factor	10	2.9
<b>Sub total</b>	<b>218</b>	<b>62.8</b>
<b>Environmental factors</b>		
Wind/sea state	40	11.5
Tidal conditions	15	4.3
Bar conditions	6	1.7
Restricted visibility	5	1.4
Wash	3	0.9
Other environmental factors	8	2.3
<b>Sub total</b>	<b>82</b>	<b>23.6</b>
<b>Material factors</b>		
Inadequate stability	11	2.3
Machinery	9	2.6
Hull failure		9
Inadequate buoyancy	4	1.2
Electrical equipment		3
Rig failure	3	0.9
Navigational equipment	1	0.3
Other material factors	7	2.0
<b>Sub total</b>	<b>47</b>	<b>13.5</b>
<b>TOTAL</b>	<b>347</b>	<b>100.0</b>



It is clear from this table that the main causes of reported incidents were human factors such as “errors in judgement”, “inexperience”, “navigational error” and a “failure to keep a proper lookout”. In essence this suggests that incidents are mainly occurring due to a lack of competence of the master and crew or due to deliberate risk taking behaviour at the risk of passengers and bystanders. Anecdotal evidence, such as surveys of members of the Water Police, surveys of officers of ports and waterway managers and the outcomes of widespread consultation in 2009 further suggests that the outcomes reflect a combination of knowledge and skill deficiencies and deliberate risk taking.

Importantly, consultation has revealed that (whether through ignorance or intent) there is significant and widespread non-compliance with existing regulatory requirements which are aimed at preventing incidents (e.g. collisions). A key finding of the marine safety review was that new tools and mechanisms are needed to generate improved compliance with existing regulatory requirements which, on the basis of assessments made, continue to be well targeted and justified.

The new *Marine Safety Act 2010* provides new tools (e.g. owner onus) and the regulations are also intended to provide assistance (e.g. through new infringement offences and higher penalties). The review also found that there may be merit in escalating licensing requirements to promote the attainment of knowledge and basic boat handling skills which, evidently, are not present in some cases. A separate Options Paper presenting the case for various licensing options has been released for consultation at the same time as this RIS and the proposed regulations.

### Summary of data analysis

The information presented in the preceding sections is a summary of more detailed information provided in Technical Paper 2.

The data clearly indicates that:

- there has been a reduction in fatalities in recent years both in the commercial and recreational boating sectors;
- the number of commercial vessel incidents and the injuries sustained appears to be holding constant over time; and
- there is a significant upward trend in hospital treated injuries arising from the use of recreational vessels.

Observation of the apparently contradictory trend of declining fatality numbers and increasing injury numbers in the recreational boating sector reflects the fact that the activities associated with most fatalities differ substantially from those associated with most injuries:

- Most fatalities are related to fishing from boats. These are typically by either the vessel breaking down and person(s) leaving the vessel in order to seek help or to reach land, or by the vessel operator being caught out by a sudden change in conditions and the vessel capsizing or being swamped.
- Most injuries are a by-product of high-speed water sports. These injuries are the result of incidents caused predominately by errors of judgment, inexperience, failure to keep a proper lookout and navigational error. With the exception of ‘inexperience’, these causes are indicators of a level of non-compliance with current marine safety requirements. This may be due to a lack of knowledge, skill or training, or disregard for the requirements.

The observation that fatalities and injuries have very different causes suggests that different strategies may need to be adopted to minimise harms. However, a question which needs to be considered first is the extent to which these harms result from decision making which is distorted by “imperfect information” or “externalities”. If there is a voluntarily assumption of reasonably well understood risks associated with an activity which does not inadvertently pose risks to others then there is no “distortion” that is impacting on decision making. In such circumstances, rational and well informed decisions are being made to accept the risk of injury (or death at the extreme) as a trade off against the enjoyment the individuals gain from undertaking the activity.

Data clearly indicates that the majority of injuries and a large proportion of the growth in injuries is associated with high speed watersports. Such activities are inherently risky and persons involving themselves in such activities knowingly accept a level of risk. It is only to the extent that persons do not knowingly or willingly accept safety risks, or when taking such risks, others are potentially affected, that there is a legitimate reason to contemplate intervention.



One reason to expect that not all persons engaging in high speed watersports knowingly and willingly accept safety risks is the imbalance of risk awareness between the master of the vessel and his or her passengers. The master of a vessel is more aware of the risks involved because the risks are either minimised or amplified by his or her knowledge and skill (or lack thereof) and his or her conduct, for example, exercising reasonable care or operating carelessly. Thus, an information asymmetry exists between the master and passengers (as well as persons being towed, where relevant) and this may distort the decisions of prospective passengers to put their trust in the master's capacity and willingness to protect his or her safety to the same extent to which the passengers would choose for themselves.

These dynamics are used to justify licensing requirements which are intended to provide assurance to prospective passengers and other waterway users that the licensed individual has the prerequisite knowledge and skill to be safe when in command of a vessel. Equally, these dynamics are used to justify the setting of statutory duties which oblige licensed masters to take the reasonable care which is generally expected and necessary to actually be safe. Certainly there is reason to believe that some of the residual harms being suffered as a consequence of high speed watersports could be avoided by prompting a greater level of knowledge and skill obtainment through licensing. Equally, some of the harms suffered could be avoided by enforcing the requirement to take reasonable care.

By contrast, it is reasonable to expect that some of the injuries associated with towed water sports, specifically those injuries sustained by the person(s) being towed, are caused by the towed person(s) lack of competence or risk taking behaviour. Such persons may be knowingly and willingly taking such risks and, on occasions, may suffer the consequences. On face value, in these circumstances, there does not appear to be good reason to contemplate intervention to address these harms. This remains the case notwithstanding that there are a number of options available to minimise a range of the most common injury types, for example: the use of personal protective equipment such as protective gloves, helmets, guards, etc.

The point of this discussion is to point out that the occurrence of fatalities and injuries is not sufficient to contemplate action. There needs to be some reason to believe that this outcome is not the product of well informed and rational choices.

There are a number of circumstantial reasons why choices may not be well informed. Accordingly, intervention may be justified. For example, setting rules which coordinate navigation decisions and segregate vessel traffic from swimming areas in order to minimise the risk of bystander injuries. However, the analysis which underpinned the establishment of the *Marine Safety Act 2010* concluded that there was no need for new types of intervention. Moreover, the priority should be on more efficiently and effectively enforcing existing requirements.



### 3. Objectives of the proposed regulations

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The objectives of the proposed *Marine Safety Regulations 2011* are the same as those specified in section 14 of the *Marine Safety Act 2010*, i.e. to promote:

- a. *the safety of marine operations;*
- b. *the effective management of safety risks in marine operations and in the marine operating environment;*
- c. *continuous improvement in marine safety management;*
- d. *public confidence in the safety of marine operations;*
- e. *involvement of relevant stakeholders in marine safety; and*
- f. *a culture of safety among all participants in the marine operating environment.*

However, each specific set of regulations has its own purpose and objective(s).

For instance, in many cases the proposed regulations remake requirements presently prescribed in either the *Marine Act 1988* or the *Marine Regulations 2009*. In these circumstances, the objective of the proposed regulations can be characterised as being to maintain current safety outcomes as well as supporting improvements, i.e. to the extent that improved compliance monitoring and enforcement of existing requirements facilitated through the new Act can avoid a greater proportion of harms from occurring.

By contrast, some of the proposed regulations, specifically those that are new or represent a change from the status quo, are aimed at achieving incremental improvements in marine safety outcomes, reductions in administrative costs and compliance costs, or, in some cases, general law and order objectives.

Each of the chapters which follow specify in more detail the nature and extent of the specific problems the proposed regulations are intended to address. There is also a specification of objective(s) for each regulation, or set of regulations.



## 4. Registration of vessels

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### 4.1 Current requirements

Under the current *Marine Act 1988*, all vessels, unless exempted, are required to be registered.

An exemption from the requirement for a class or type of vessel to be registered can be prescribed in the Regulations, or exemptions may be granted by the Safety Director (via notice) using the discretion provided under section 67 of the *Marine Act 1988*.

It is an offence for a person to operate an unregistered vessel on State waters, or for the owner or person in charge of a vessel to allow an unregistered vessel to be operated on State waters. This offence is able to be enforced through the use of infringement notices. In the last 5 years, 844 infringement notices have been issued. This is 8.5% of the total infringement notices issued during this period.

There are approximately 170,000 vessels presently registered in Victoria, but the total number of vessels registered varies considerably during the calendar year. The variation reflects both the turnover in the fleet and the seasonal nature of boating activity – i.e. if a registration lapses in the off season for boating there is no imperative to re-register or renew registration until the start of the next boating season. The same dynamics do not apply to motor vehicle registrations because motor vehicles are used all year round, and, perhaps most importantly, allowing a motor vehicle registration to lapse triggers a need for a road worthiness check to be undertaken (at the owner's expense and with the risk that faults might be found). Thus, there is an incentive to maintain registration for the whole year, rather than letting it lapse.

An application for registration (or for the renewal of registration) of a vessel must be made to the Safety Director by the owner of the vessel or a person authorised by the owner. Vessels may be registered (or have their registration renewed) by the Safety Director for a period of not more than one year. If the requirements and standards for registration under the regulations are met, the Safety Director must register the vessel. At present, the only requirements are to provide information about the vessel, provide proof of identify and pay the prescribed fee.

The regulatory burden of the registration requirement is the time and effort associated with completing the registration process for the first time and then the time and effort associated with renewing registration every year.

The registration renewal process is straightforward and the same as for a motor vehicle – i.e. paying the renewal fee by phone, internet, or in person at a post office or VicRoads office. In contrast, the initial boat registration requires:

- › making an appointment to register the boat;
- › providing identifying details of the boat and the owner, and
- › paying the appropriate fees.

In the Discussion Paper released by DOT in July 2009 (*Improving Marine Safety in Victoria*) the cost of new registrations and renewals each year was estimated as being in the order of \$3.3 to \$3.6 million (p57). The current estimate is that the cost of new registration and renewals is in the order of \$3.5 million p.a. which is based on better information about the average number of transactions by type, time costs associated with going to and from processing centres (when necessary) and a better understanding of fully attributed administrative costs. These estimates include the time and effort of the vessel owner, material costs (for identification marks) and the processing costs involved, but excludes the boating facilities and safety education fee which can be considered to be a transfer (i.e. not a resource cost) for the purpose of the analysis.

As indicated, this regulatory burden has historically been justified on the grounds that registration of vessels is necessary to enable marine safety regulations to be effectively enforced. If there was no means to identify the person(s) responsible for a vessel then there would be no ready means to enforce many requirements which apply to the "owner" of the vessel.

The new *Marine Safety Act 2010* continues the requirement for vessels to be registered and makes the purpose of vessel registration explicit and clear (section 36):

- a. to enable the operation of vessels on State waters to be regulated for reasons of safety;
- b. to ensure that vessels used on State waters meet prescribed safety standards; and
- c. to provide a method of establishing the identity of each vessel which is used on State waters and of the person who is responsible for it.

Section 39 of the Act sets out the obligation for vessel owners to apply for registration and specifies the circumstances in which the Safety Director must register, renew or transfer the registration of a vessel between individuals. However, the details about how to apply, what information must be supplied and the standards which are applicable are left to be specified in the regulations.

The proposed regulations remake the requirements specified above as well as introducing reforms aimed at better satisfying the purposes of vessel registration and avoiding potential for the registration system to be exploited for criminal purposes.

## 4.2 Nature and extent of the problem

Registration is about identifying vessels for compliance and enforcement purposes and generally enabling effective regulation through the collection of data about vessels (e.g. type, length, method of propulsion, etc). Hence the costs imposed through registration requirements need to be, in part, attributed to all the other regulatory requirements which are aimed at addressing problems, i.e. registration is an unavoidable cost of establishing the system of regulation. Without it, most of the other regulatory requirements would not function efficiently, nor be enforced effectively.

This Chapter of the RIS is not about justifying the requirement for “owners” of vessels to register them. The decision has already been made by the Victorian Parliament to continue this requirement. Instead, the purpose of this Chapter of the RIS is to examine whether existing regulations can be justified. What would happen if there were no regulations associated with the registration of vessels? Do the benefits outweigh the costs? Are there feasible alternatives which produce a better result?

Furthermore, this RIS is concerned with whether certain changes can be made to the registration system to:

- › improve the accuracy of information provided and kept, consistent with the specified purposes of registration;
- › avoid the registration system being exploited for illegal purposes; and
- › reduce regulatory burden.

When inspecting the registration database it is clear that some of the data in the registration database is missing and some data is inaccurate, leading to problems with enforcing marine safety laws.

For instance, there are numerous examples of vessels not matching vessel descriptions. A review of information recorded in relation to PWC (otherwise referred to as jet skis) has identified the following anomalies:

- › there are 100+ vessels registered as being wooden PWCs, when no such vessels have ever been constructed;
- › 400+ PWCs are listed as having outboard engines when PWCs do not have outboard engines; and
- › 100+ PWCs are listed as being over 4.8m in length (indeed 10 are recorded as being over 12m in length). No PWCs are known to have been manufactured over 4.8m in length (3.5m is the approximate length of a 3 seater).

In addition, there is evidence that some persons falsely report vessel length in order to avoid regulatory requirements. For example:

- › increased fees apply when vessels are greater than 4 metres in length. There is a disproportionate number of vessels registered at a length just under 4 metres; and
- › mandatory wearing of PFDs is required for vessels smaller than 4.8m. There is a disproportionate number of vessels registered at a length just greater than 4.8m.

Furthermore, due to the lack of monitoring of information as well as the lack of independently verified information, there are some examples of:

- › non-existent vessels being registered and the details subsequently used to defraud insurance companies; and
- › vessels previously stolen (whether from persons within Victoria or interstate) being “rebirthed” in Victoria (i.e. registered and sold).

The nature and extent of the latter problem is difficult to quantify due to the fact that not all criminal activity is being detected. However, information supplied by insurance companies for a representative sample of over 20% of the registered fleet enables DOT to reliably forecast that there are at least 300 stolen boats per year across Victoria that are not recovered. Further, the value of stolen boats lost and not recovered per year in Victoria is approximately \$7 million.

Vessel “rebirthing” activity is impeded in other States (e.g. New South Wales, Western Australia and Queensland) due to the fact that Hull Identification Numbers (which provide a unique identifier for the vessel) must be reported in those States, and vessels must be checked by administering authorities before registration can be processed. Because of the less stringent registration requirements in Victoria, Victoria risks being targeted as a State where vessels stolen in other States can be registered and sold.

### 4.3 Objectives of the proposed regulations

The objectives of the proposed regulations are to achieve the purposes of registration specified in section 36 of the *Marine Safety Act 2010*.

It is also an objective of the proposed regulations to establish safeguards which prevent the registration system from being exploited for criminal purposes.

The proposed regulations aim to satisfy these objectives whilst minimising administrative and compliance costs associated with the registration of vessels.

### 4.4 The base case

The Victorian Guide to Regulation requires that for new regulations or for regulations which are sunseting, a RIS should assume “zero” or no regulations as being the base case against which the proposed regulations and feasible alternatives should be assessed.

In this case the adoption of zero base case would suggest that there are no regulations about information which needs to be provided by vessel owners when they are applying to register their vessels, nor are there any regulations which authorise the Safety Director to issue renewals or deem the payment of renewal fees as sufficient to satisfy renewal requirements. Importantly, there would be no exemptions from the requirement to have all vessels registered.

The Act clearly envisages that regulations will be made to specify procedural and information requirements as well as providing the Safety Director with sufficient authority to enforce these requirements. Basically, such regulations are needed to make the registration system work as intended.

So, while the base case of no regulations is always the starting point, in some cases it is clear that not having regulations would frustrate the intent of the Act and that having regulations is clearly superior to the option of having no regulations. This is the case in some of the areas where regulations are proposed.

### 4.5 Identification of feasible options

The remaking of the existing requirements specified in the *Marine Regulations 2009* is an option which can be categorised as retaining the “status quo”.

The status quo requirements have evolved over decades in order to achieve the implicit purposes of registration. Refinements have been made to minimise administrative and compliance costs, including, for example, the automation of registration renewal by deeming payment of fees applicable (in response to receiving renewal advice in the mail) as satisfying the requirement to apply for renewal.

Adopting this process for registration renewals saves administrative costs, but most importantly, also saves compliance costs – there is no need for the owners of registered vessels to visit a VicRoads office (acting as the

delegate of the Safety Director) or engage in two or more rounds of correspondence with the Safety Director or nominated delegate.

The status quo therefore serves as a legitimate starting point for the consideration of options. These options are considered in detail in Technical Paper 4. They are summarised in the following sections.

#### 4.5.1 Scope of parties required to be registered

Making changes to the exemptions included in the status quo regulations could potentially result in significant increases in aggregate administrative and compliance costs.

For example, requiring all wind or human powered vessels to be registered would result in a one-off cost of \$1.9 million and on-going costs of \$0.5 million p.a. The benefits would be that these vessels and their owners would be able to be identified more readily. However, experience has demonstrated few problems with enforcement activity in relation to these types of vessels, because enforcement tends to be concentrated on the master of the vessel at the time the vessel is being operated, not the vessel owner. In summary, exemptions are proposed to remain the same under the status quo.

#### 4.5.2 Information to be provided in applications

The information to be provided during the process of registration needs to be sufficient to achieve the purposes of registration. Basic information about the vessel which assists with its identification is essential, as is information sufficient to identify the owner or person responsible for the vessel. However, choices can be made about the strategic information collected as an adjunct to the registration process.

“Strategic” information is that which assists regulatory authorities to fulfil their regulatory functions, for example, information that aids the assessment and management of safety risks, prioritisation of safety education initiatives, targeting of enforcement activity, etc.

The status quo regulations specify a range of information which needs to be provided at the time of registration, some of which can be categorised as strategic. This is information readily available to the owner of the vessel, and the cost of providing it is limited to the time it takes to write it on the registration form. Even with current information requirements this time is a small component of the registration compliance costs. Far more significant is the time required travelling to and from a VicRoads or Australia Post to undertake the registration. Accordingly, only minor gains can be made by limiting information required at the time of registration. However, gains can be made by making sure information collected for strategic purposes is actually of use.

There has been a careful examination of the data collected under the status quo regulations and there is merit in replacing some of the information requirements with alternatives of greater strategic value (Table 4.1 below).

**Table 4.1 – Changes in information requirements from those in the Marine Regulations 2009**

Marine Regulations 2009	Proposed Marine Safety Regulations
(i) the type of engine;	(i) the type of engine
(ii) the type of drive;	(ii) the type of propulsion;
(iii) the type of vessel;	(iii) the type of vessel
(iv) the type of hull;	(vii) hull configuration;
(vi) the make of engine;	(viii) the length, breadth and colour;
(v) the length, breadth and colour;	(ix) the make of engine;
(viii) the engine number;	(x) the engine serial number or numbers, if any;
(ix) the engine’s horsepower;	(xi) the engine’s horsepower;
(x) the engine power units;	(v) the number of engines
(xiv) assigned registration number (if applicable);	(vi) registration number, if assigned;
(xv) whether an Australian Builders Plate has been fixed to the vessel;	(xiii) whether an Australian Builders Plate has been fixed to the vessel;
(vii) the name of engine maker;	(iv) the type of fuel required to operate the vessel;
(xi) the number of cylinders in the engine;	(xiv) the date of manufacture of the vessel;
(xii) the internal diameter of the cylinders;	(xii) hull identification number;
(xiii) current registration details (if applicable);	(xv) the construction material;



Making a Hull Identification Number (HIN) an information requirement will imply, in some circumstances, additional costs for vessel owners. This is because vessels without a HIN will be required to have one affixed.

The HIN requirement is clearly analogous to the VIN system which has been in operation in relation to motor vehicles for many years. Providing that all new vessels must have HIN as a condition of registration and that all vessels sold must also have HIN in order to have their registration transferred is expected to provide benefits in terms of a reduced incidence of boat theft and an increased probability of recovery of stolen vessels. The presence of the HIN is expected to act as a deterrent to theft, since it increases the probability that a stolen vessel can be identified as such. Similarly, the ability to clearly identify a vessel as stolen will assist in its recovery.

However, this presumes that HIN numbers will be checked when vessels are registered and/or when registration of a vessel is transferred between two people. Monitoring new registrations and registration transfers to try and detect when stolen vessels are being resold is an option but this presumes that stolen vessels are re-registered with similar characteristics. This need not be the case.

#### 4.5.3 Verification

Verification of registration details aims to deter criminal activity as well as improve the accuracy of registration records. The status quo regulations include no such verification requirement and this is a key vulnerability in the system. By way of contrast, road vehicles must either be presented to a VicRoads office when first registered in Victoria, or must be registered by an authorised dealer. VIN numbers and other registration details are also checked as part of the roadworthy certificate process which occurs when used vehicles are sold and registration is transferred.

This Chapter of the RIS considers the benefits and costs of information verification. It does so on the assumption that the Safety Director will accredit persons (at least 50) to verify vessel registration details and certify that such details are correct. For example, it is assumed that all dealers will be accredited to verify vessel registration details. Vessel registration details will not be permitted to be verified at VicRoads processing offices as VicRoads is unable to fulfil such functions.

It should be noted that a large number of the accredited persons can reasonably be assumed to be authorised by the Australian boatcode company to issue and affix HIN numbers to vessels. This is important because it means that if a HIN number needs to be affixed to a vessel it can be done concurrently with the verification of registration details.

#### 4.5.4 Period of registration

The base case is that there is no period of registration and by implication there is no requirement to renew registration. The purpose of registration renewals is twofold:


- › as a check on the accuracy of address information for the registered owner; and
- › to enable the collection of fees.

If there were no registration renewals then these functions would still need to be performed. The Safety Director would still be obliged to invoice the owners of registered vessels for fees due and as part of this process the accuracy of address information for the registered owner would be tested.

In practice, the costs of administration and the compliance costs involved (relative to the current practice of annual renewals) would be identical, but only if the Safety Director's choice was to maintain a practice of issuing annual invoices. Such an assumption is reasonable in light of the fact that the information technology systems set up to manage registration renewals are currently geared towards annual renewals. The Safety Director would not change this without a clear incentive to do so.

The major disadvantage of the alternative invoicing process is that there would be no ready means of enforcing the payment of fees. By contrast, with registration renewals, if payment is not made then registration lapses and a vessel owner who operates without having his/her vessel registered runs the risk of being caught. The disincentive to engage in such behaviour will be greater under the proposed regulations because the penalty that can be imposed through infringement notices (for operating unregistered) will increase from 1 penalty unit to 5 penalty units.

The further disadvantage associated with simply invoicing for the payment of fees is that such a system relies on the compliance of the participants. In response to receiving an invoice a person may advise that he/she is no longer engaging in marine operations and therefore is not liable to pay the fees. Alternatively, rather than letting registration lapse, the invoicing model would necessitate all those wishing to exit from involvement in marine operations in State waters to seek to surrender their registration, through a surrender process. Given



that approximately 7900 vessel registration lapse each year, this approach would result in this many additional transactions.

For these reasons, the continuation of the status quo registration renewal process is the optimal alternative. The key policy question then becomes: what should the registration period be?

A reason why both individuals and government may prefer annual renewal is for budgeting purposes. i.e. there is certainty that a payment must be made and that revenue is obtained. In addition, when we take into account the fact that an individual considers a dollar available to spend today as being of more value than a dollar to spend in the future ("principle of discounting"), individuals are generally more likely to prefer paying fees when renewal is due rather than in advance.

This Chapter of the RIS considers the potential benefits and costs associated with changing the frequency of registration renewal. However, it should be noted that there are information technology system constraints which impede making changes to registration frequency in the short term, should this option be supported. For this reason, the proposed regulations do not incorporate any change to the frequency of registration renewal.

#### **4.5.5 Renewal process**

The registration renewal process has evolved to the point that it fulfils two functions at minimum cost – the time and effort associated with the payment of the fee and processing its payment. Beyond the collection of fees, the other function served by registration renewal is a check on the accuracy of details of persons registered as being responsible for vessels. The option of maintaining the status quo is superior to the base case (i.e. no regulations would necessitate a trip to a processing centre) and to other options that are considered feasible (e.g. written application, response and then payment of fee using electronic means).

#### **4.5.6 Modification of vessels**

Given that one of the purposes of registration is to obtain and record information about the vessel to enable compliance monitoring and enforcement, there is reason to contemplate a requirement to notify the regulatory authority if and when vessels are modified. In particular, changes to the appearance of the vessel or to features of the vessel (such as length, breadth, type of propulsion, type of fuel) should be notified in order to maintain the integrity of the database, and hence its usefulness for compliance monitoring and enforcement purposes.

In general, the costs implied by the requirement to notify of particular changes to a vessel should be minor. This is because changes can be notified by email, web-based portal or even by phone. In addition, available information suggests that vessels are very rarely modified, such that the modification changes the appearance of the vessel and/or one of more of its key features.

#### **4.5.7 Change of address**

On balance, DOT's position is that there should be a specific requirement to oblige persons responsible for registered vessels to notify changes in address details.

#### **4.5.8 Transfer of registration**

As with the initial registration of a vessel, there are options in relation to the information which needs to be provided when registration is transferred and there is also the option to verify the details of the vessel at this time. There are also options in relation to the timeframe available to transfer responsibility for the vessel between the disposer and the acquirer, and, contingent on these options, there is a question about where the onus lies, i.e. is the onus on the disposer or the acquirer of the vessel to take actions or do both have obligations.

Practice in both the road and marine context suggests that there should be a continuation of obligations placed both on the disposer and the acquirer.

The status quo period of 14 days is considered a reasonable amount of time to complete the transaction between the two parties. A lesser time period may make it difficult to comply. A larger period increases the risk that the vessel in question may be used to commit an offence.

#### **4.5.9 Information to be recorded and kept**

The logical conclusion is that the Safety Director should be obliged to maintain registration records which align with the information requirements that applicants for registration are required to observe.

#### 4.5.10 Identification mark and label

One of the key purposes of registration is to enable the identification of the vessel, and by implication, the identification of the person who is responsible for the vessel. The assignment of the identification mark and the placement of it on the vessel are of critical importance in satisfying this purpose. Clearly there are costs associated with placing identification marks on vessels and standards for identification marks are necessary to ensure that they are effective in achieving their purpose.

DOT's assessment is that having no specification of identification marks and no standards for the making of these marks is not viable. It would make the identification of vessels for compliance and enforcement purposes impossible, and render useless the new capacity to hold the registered owner of the vessel responsible for offences committed using the vessel (i.e. "owner onus").

The status quo regulations provide for identification marks to be made from characters that are at least 150mm in height, of proportionate breadth and in a colour which contrasts with the colour of the hull to which they are applied. Furthermore, the status quo regulations require that vessels must be marked twice – on either side of the bow of the vessel. The proposed regulations continue these requirements but do provide a greater level of specificity regarding where the mark should be located on the side of the hull. The proposed regulations also recognise that there is difficulty in PWCs meeting this requirement and accordingly they specify different requirements for PWCs.

These changes are not proposed to be applied retrospectively, but instead, will be applied to all new vessels registered in Victoria for the first time. As such, the changes to the status quo can be accommodated at no additional cost – it is merely a matter of placement of the identification mark on the vessel.

## 4.6 Assessment of costs and benefits of options

Technical Paper 4 provides the details about how such costs and benefits have been estimated. Costs and benefits of options are only assessed in detail when the costs imposed are likely to be "significant"<sup>3</sup>.

### 4.6.1 Mandating HINs and requiring vessel details to be verified

The proposed regulations require that all new boats sold must have a HIN attached at the time of registration, while existing vessels would be required to have a HIN attached at the time of transfer of registration. Cost estimates include the direct costs of affixing HINs (where necessary) as well as the time and waiting costs associated with transporting vessels to and from where HINs are affixed and details are verified.

A key assumption for the purpose of the analysis of costs of HIN and verification options included in the proposed regulations is that accredited agents of the boatcode company (i.e. manufacturers and dealers) will also be accredited by the Safety Director to verify vessel details for the purpose of registration. This is a reasonable assumption, as it matches the intent, and because there are obvious synergies in these services being provided in this way.

Table 4.2 shows that the direct cost of requiring HIN to be fitted to all vessels registered for the first time or transferred is approximately \$2 million over the 10 year period. The direct cost of verification is approximately \$5.8 million over the 10 year period. However, as indicated, there are substantial indirect costs, mainly transport and waiting costs imposed on the owners of vessels when presenting their vessels to accredited persons at the accredited person's premises. In total, costs are estimated to be in the order of \$12.4 million in present value terms over the 10 year period.

<sup>3</sup> A proposed statutory rule is significant if it imposes (a) a measurable cost impact on any sector of the public of greater than \$500,000 per year; (b) other significant but non-quantifiable costs; (c) significant penalties for non-compliance; or (d) impacts on individual rights and liberties.

**Table 4.2 – Cost of HIN and verification requirements for vessels being registered or transferred**

	Year 1	Year 10	Total
Total number of registered vessels	170000	205100	
Number of vessels with HINs	85000	205100	
% of fleet with HINs	50%	100%	
Cost of retrofitting HINS	\$ 477,750	\$ –	\$ 1,948,487
Verification costs for transfers	\$ 281,334	\$ 477,750	\$ 3,845,716
Accreditation costs	\$ 55,000	\$ 25,000	\$ 280,000
Verification costs for new registrations	\$ 199,290	\$ 199,290	\$ 1,992,900
Transit to and from accredited person's premises	\$ 487,282	\$ 487,282	\$ 4,872,822
Waiting costs at accredited person's premises	\$ 320,320	\$ 91,520	\$ 1,848,353
Total expected costs	\$ 1,801,596	\$ 1,261,462	\$ 14,594,477
Present Value of estimates costs	\$ 1,759,397	\$ 908,013	\$ 12,431,735
Discount factor (3.5%)	1.035	1.411	

The specific benefits of HIN and verification are expected to include the following:

- HINs provide a system of traceability for individual vessels, making it far more difficult to “rebirth” stolen vessels – reducing the incentive to steal vessels and increasing the probability that stolen vessels will be recovered.
- The HIN could potentially have safety benefits, as it would enable manufacturers to clearly identify the boats involved in a defect notification and recall campaign.
- HINs allow for third party verification of details of a vessel at HIN issue or validation, thus improving the quality of vessel data at registration.
- The HIN system has operated successfully for many years in other States. Its adoption in Victoria would contribute to national uniformity of registration requirements.
- HINs complement the Australian Builders Plate (ABP) requirements, as each ABP must have either a manufacturer’s number or a HIN listed on the plate.
- Verification of vessel details will ensure that appropriate fees are being paid and will correct inaccuracies in the registration database. This will enable more efficient and effective compliance - for example by enabling compliance with mandatory PFD wearing requirements to be checked without having to stop and measure vessel length.

Private incentives to retrofit HINs can clearly be identified – indeed it is known that one insurance company is actively subsidising the retrospective fitting of HINs using data dot technology because of the expected benefits in theft deterrence and vessel recovery. This leads to the question of why regulatory action is required when vessel owners have an interest in fitting HINs voluntarily.

Despite insurance industry support for HINs it is clear that many owners are unfamiliar with the HIN concept in the marine context and, as a result, do not seek out this service. It could be argued that the lack of voluntary action in this area reflects an under-estimation of the risk of theft by vessel owners. The most significant argument for intervention is that the efficacy of the system in deterring theft is maximised when all vessels are required to have HINs and when vessels details are verified at the time of registration or when vessel registration is transferred. So in order to maximise the efficacy of the HIN system as well as the integrity of the registration system, government action is necessary.

Furthermore, the arguments for taking such action now is supported by the fact that there is a newly revived push at national level for those States which do not currently mandate HINs (Victoria, South Australia and Tasmania) to change their requirements and start mandating HINs so that the efficacy of the HIN scheme is maximised nationally. This is in response to increases in boat theft across the country.

Data previously provided by Victoria Police covering the early 2000s indicated that vessel thefts averaged approximately 150 per annum (about 0.1% of the fleet). Insurance data based on a sample size of 20% of the fleet in year 2010 indicates that the number of stolen vessels per year has increased to approximately 300. The number of stolen vessels is therefore increasing at approximately 10% p.a.

Based on insurance data which DOT has obtained, the average value of a stolen vessel is \$24,000. If this value is used, a rate of 300 thefts p.a. in year zero mean that vessels valued at \$7.9 million would be stolen in year one. If the number of thefts increases at approximately 10% p.a. the present value of boat theft anticipated over the next decade if no action is taken is estimated at approximately \$102.2m.

The cost estimate of \$12.4 million in present value terms over 10 years is equivalent to \$1.2m in annualised terms. Boat theft is expected to have a present value of around \$10 million in annualised terms. So for the combination of HIN and verification requirements to be justified, there must be at least a 12% decrease in thefts or an equivalent increase in recoveries.


Given DOT's understanding of the recovery rates being achieved in those States where HINs are mandatory and verification processes exist, which are significantly higher than those being achieved in Victoria, DOT believes that at least a 12% increase in recovery of vessels is achievable. This would mean that the HIN proposal is likely to have a net benefit.

#### **Feasible alternative: require all vessels to be fitted with HIN and verified in the short term**

The cost of this option (\$5.95 million) is considerably higher than the estimated cost of having HINs fitted progressively over the next 10 year period as new vessels are registered, old vessels are retired and some vessels are transferred between owners (costs at present value approx. \$2 million). The value is considerably higher because of two factors: discounting; and most importantly, because the proportion of the fleet fitted with HINs is increasing anyway because all new vessels and most second-hand vessels from interstate already have HINs.

The cost of verifying the details of all vessels registered or renewed in one year would be \$6.4 million. However, this ignores the on-going need to verify registration details when registration is being transferred and when new vessels are being registered for the first time. When assessed on a comparable basis (over the 10 year life of the regulations) the total direct and indirect costs of verification under this option are \$15.6 million. Again, this is considerably more costly than what is implied by the proposed regulations (approximately \$10m in verification costs).

One of the reasons why this option is attractive is an expectation that the benefits (in terms of theft deterrence/ vessel recovery) will be greater if all vessels were to be required to have HINs affixed within a brief transitional period, rather than only being required to be retrofitted over time, as under the proposed regulations. The analysis shows that at least a decade will elapse (under the proposal) before all vessels in the fleet have HINs affixed.



However, this view ignores that what the reform seeks to deter is vessel theft and sale of stolen vessels. The proposed regulations would deter the sale of stolen vessels (and hence theft) from the outset by precluding the registration of vessels with false details and by aiding the recovery of vessels – through the necessary declaration of a HIN, or the requirement to have a HIN retrofitted, with associated checks).

Accordingly, the benefits foreseen from the reform can be obtained almost immediately, despite the process of verification and fitting of HINs occurring over the decade to follow. This is because it is the process of verification, combined with the unique identifier that provides the protection against theft and re-sale. Given this, there is little to be gained in terms of deterrence by requiring all vessels without HINs to obtain HINs in the next year, nor by requiring all registration records to be verified in the next year.

#### **Feasible alternative: require only vessel details to be verified**

There is a private incentive to fit HINs to vessels and indeed this is why the fitting of HINs is progressively occurring, albeit at a relatively slow rate. It is therefore apparent that one option available is to not require HINs to be fitted, but instead, focus only on the verification of registration details. Such an option could include, for example, a requirement to provide the HIN number when registering a vessel, or transferring the registration of a vessel, but only in circumstances where a HIN number has been allocated to the vessel. Regulations would not implicitly require a HIN to be obtained.

This option would save approximately \$2 million in costs in present value terms. It would also preserve compliance monitoring and enforcement benefits which can be attributed to having better information. However, it would leave scope for stolen vessels to be sold and re-registered without detection, significantly diminishing the foreseeable benefits. In addition, it would not aid the recovery of vessels because, while vessel details would be verified, the applicant for registration would not be required to give a HIN even if the vessel has (or had) one.

#### **Feasible alternative: require HINs only**

The cost of this option is approximately \$6.5 million consisting of the cost of affixing HINs, the costs of transporting vessels to and from the point where HINs are affixed plus the time cost of waiting while the HIN is being affixed. This cost is slightly more than half of the total estimated cost of \$12.4 million for the combination of HIN and verification requirements.

Due to the reduced cost this option may appear attractive. However, it is reasonable to believe that it would be largely ineffective. HINs are only useful when there are processes established that look for them and check them when vessels are being registered, re-registered or transferred. If registration details are not verified then all relevant information provided at the point of registration (including the HIN) can be fabricated and there is no way of detecting that this is the case. In a number of respects, this option is no better than the status quo.

### **4.6.2 Change the frequency of registration renewal**

The *Marine Safety Act 2010* clearly envisages that registration will be renewed, for the purpose of checking registration details and enabling the collection of fees. When the Act was passed, the assumption was that the status quo practice of annual renewal would be maintained. However, as discussed, it is feasible to change the frequency of registration renewals and the benefits and costs of doing so need to be considered.

Over the 10 year life of the proposed regulations, the present value of registration renewal costs is approximately \$19.9m in total.

If the frequency of registration renewals were to be changed, so that renewals occurred every two years or every three years then there is potential to save administrative and compliance costs. However, as time between renewals increases, the effectiveness of registration in fulfilling its specified purposes will diminish.

In addition, changing the frequency of registration renewal requires significant information technology and business process changes to be made. At present, the whole system of administration (delivered by VicRoads on behalf of the Safety Director) is geared around an annual process of registration for vessels (as well as for car, trucks, motorcycles, etc). Detailed investigations are necessary, but it is not unreasonable to expect that one-off transitional costs in the millions of dollars would need to be spent.

As indicated in Table 4.3, the present value of costs if renewals were required every two years is \$9.9 million. This implies that this option would result in a cost saving of \$10 million over 10 years.

**Table 4.3 – Estimates of administrative and compliance costs associated with registration renewal**

	Year 1	Year 2	Year 3	Year 4	Year 5	Total over 10 years
Total registrations	170000	173900	177800	181700	185600	
Renewals	158200	162100	166000	169900	173800	
New registrations	11800	11800	11800	11800	11800	
Registrations not renewed	7900	7900	7900	7900	7900	
Cost of registration renewals (annual)	\$ 2,161,953	\$ 2,215,250	\$ 2,268,547	\$ 2,321,844	\$ 2,375,141	\$ 24,017,900
PV of costs	\$ 2,088,843	\$ 2,067,959	\$ 2,046,099	\$ 2,023,353	\$ 1,999,805	\$ 19,849,189
Cost of registration renewals (biannual)	\$ 2,161,953	\$ –	\$ 2,107,289	\$ 161,258	\$ 2,052,625	\$ 11,875,707
PV of costs	\$ 2,088,843	\$ –	\$ 1,900,654	\$ 140,527	\$ 1,728,255	\$ 9,941,543
Cost of registration renewal (every 3 years)	\$ 2,161,953	\$ –	\$ –	\$ 1,999,328	\$ 161,258	\$ 8,639,611
PV of costs	\$ 2,088,843	\$ –	\$ –	\$ 1,742,299	\$ 135,775	\$ 7,210,081
Discounting factor (3.5%)	1.035	1.071	1.109	1.148	1.188	

Note that in year 4 (refer to row for estimates of biannual costs), vessels newly registered in year 2 will have to renew their registration. Similarly in year 6, vessels newly registered in both years 2 and 4 will have to renew their registration. It is through this process that the reduced total volume of transactions spreads out over time.

The present value of costs if registration renewals were required only every 3 years is \$7.2 million, meaning that there would be a cost saving of \$12.7 million over 10 years. As with the modelling of biannual transactions it should be noted that in year 5, vessels newly registered in year 2 will have to renew. Equally in year 6, vessels newly registered in year 3 will have to renew. So, while there is an initial peak in activity in the first year, the total amount of annual transactions will smooth out over time.

For both the 2 year and 3 year renewal options, the potential cost savings that have been estimated would need to be adjusted by the estimated costs of system and business process changes that would be needed to accommodate a change in renewal frequency. At present, this cost is uncertain but for purpose of illustration only, it can be assumed that the one-off cost of making such changes is approximately \$2 million. Based on the results of this analysis, such an expense could easily be justified.

This leaves only one matter that potentially augurs in favour of maintaining the status quo – the willingness (or lack thereof) of registered owners to pay the prescribed fee in advance. The fee being referred to is the boating facilities and safety education fee which raises revenue:

- for the provision and maintenance of boating facilities and services for the public; and
- for the conduct of boating safety, boating education and boating promotion programs for the public.

(Section 109(1) of the *Marine Act 1988* and Section 312(1) of the *Marine Safety Act 2010*)

If the frequency of registration renewal is changed, and the desire of government is to maintain the generation of revenues for the specified purposes, then multiples of annual fees will need to be charged in advance. For example, a \$70 fee would become a \$140 fee charged every 2 years, or \$210 every 3 years.

Under the licensing system the majority of people have demonstrated a willingness to pay such fees in advance. Licence holders currently have the option of renewing for 1 year (\$30), 3 years (\$90) or 5 years (\$150). Approximately 56% choose to renew for 5 years, 32% choose to renew for 3 years and only 12% choose to renew annually. However, this result might not necessarily hold if the total value of a 3 or 5 year registration renewal represents a significant proportion of the average weekly, fortnightly or monthly budget. If registration renewals cease to become “affordable” for a proportion of the boating public then a potential consequence is an increase in non-compliance.

Accordingly, a key question for consultation is whether or not revised fee levels, for example, charged every three years, are supported and perceived as affordable.

## 4.7 Conclusions

Registration is considered to be the unavoidable cost of establishing a system of marine safety regulation. Without it, most of the regulatory requirements intended to be applied to recreational vessels would not function efficiently, nor be enforced effectively.

The current system of registration for vessels operating in State waters costs the Victorian community approximately \$3.5 million per annum. This includes all the costs attributed to the registration of new vessels, the affixing of identification marks to vessels, the transfer of registration when vessels are disposed or acquired and the annual renewal of registration for Victoria's existing fleet of 170,000 registered vessels.

Exemptions from registration have historically been provided to a range of parties, including the owners of wind and human power vessels, trading and fishing vessels and vessels temporarily visiting from interstate. Exemptions have also been provided to dealers and manufacturers that test or display vessels prior to sale, but only if they attach special identification plates to vessels that are within their control. The special identification plate system has been established as an alternative to registration.

There are no known problems caused by the exemptions which exist, nor the system of special identification plates. The continuation of these exemptions (through the making of the proposed regulations) would avoid \$2 million in one-off registration costs and \$0.5 million of on-going registration renewal costs (assuming a continuation of annual renewals). Accordingly, it is considered that the continuation of exemption regulations is justified.

A variety of information about vessels is required to be provided when vessels are registered or when they are transferred. It is proposed to substitute some of the existing information requirements for alternatives. In most cases this can reasonably be expected to result in no additional costs.

The exception is the proposal to mandate HINs. This reform, when combined with the proposal to verify vessel details (prior to registration or transfer) is aimed at deterring and addressing existing levels of vessel theft and fraud which is presently valued at approximately \$7.2m p.a, but growing in the order of 10% p.a. The proposed reform is expected to cost \$14.2m over the 10 year life of the proposed regulations. The assessment is that this reform would produce benefits if it is successful in reducing theft and fraud by 12%. DOT's judgement is that the proposed reform would be at least this effective.

A key reason for believing that a 12% or greater reduction in theft and fraud is probable is because the reform will make fraudulent re-birthing of vessels much more difficult. At present, there is no adequate system in place to deter such activity.

It is appropriate and necessary for stakeholder consultation to focus on this matter of judgement.

*Question: Do you believe that the proposed mandating of HINs and system of registration verification would result in at least a 12% increase in vessel recovery rates?*

Registration is currently required to be renewed annually. The merits of changing the frequency of registration renewal have been considered and there appears to be an overwhelming argument in favour of reducing frequency to obtain administrative and compliance costs savings – estimated in excess of \$10 million in present value terms. Such savings can be achieved by, for example, renewing registration biannually or only every 3 years.

This result does not take into account costs associated with changes to IT systems and business processes which would be made to accommodate the proposed change in renewal frequency. Such changes are reasonably expected to cost millions, but, would still be expected to be outweighed by the estimated administrative and compliance cost savings. In any event, such significant changes to IT systems and business processes could not be given effect by the intended time of the making of the proposed regulations. So this option cannot be progressed in the short-term but could be pursued in the medium term (1-2 years) subject to system changes.

This leaves only one matter which potentially favours maintaining the annual renewals – the willingness of registered owners to pay the prescribed fees in advance. If the frequency of registration renewal is changed, then multiples of annual fees would need to be charged in advance.



*Question: Do you support changing the frequency of registration renewal if this would mean that you would have to pay the estimated fees specified in the following table?*

Vessel Length	Current	Every 2 years	Every 3 years
Less than 4m	\$35.40	\$66.40	\$97.60
Greater than 4m	\$73.90	\$143.50	\$213.10

For the prescribed purposes of registration to continue to be fulfilled there is a need for registered owners of vessels to notify if and when vessels are modified and if and when their address details change. There are administrative and compliance costs involved in complying with such requirements. Due to information limitations it has not been possible to quantify these costs. However, there is a reasonable expectation that such costs will be very modest in aggregate terms. For this reason, the proposed regulations are considered justified.

The requirement to affix identification marks to both sides of the bow of each registered vessel is proposed to continue. This is an essential component of the registration system. To not do so would defeat the purposes of registration. DOT considers that the estimated annual costs (\$170k to \$270k) of affixing identification marks to newly registered vessels can be justified in this context.

It has been concluded that the inclusion of regulations which confirm the implied powers of the Safety Director (for example, to not register a vessel if requirements have not been satisfied) is warranted for the purpose of providing transparency and certainty. Equally, the proposed regulation that pertains to the Safety Director's register of vessels is warranted for the purpose of providing assurance to vessel owners that records will be properly maintained and managed.

Lastly, it is noteworthy that if registration renewals are changed so that they are only required every three years (instead of being required annually) then the estimated savings will offset entirely the estimated costs of requiring HINs to be affixed and vessel details to be verified at the time of registration. It is therefore foreseeable that a much more effective system of registration, with strong measures in place to deter and prevent vessel theft and fraud, can be achieved with no additional cost to the community in aggregate terms.



## 5. Vessel standards

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This Chapter considers the number of marine safety incidents involving recreational vessels which are attributable to material factors (called 'material factors incidents'). It considers the possibility that regulations designed to improve the physical condition of recreational boats in Victoria may provide benefits.

### 5.1 Nature and extent of the problem

In the period from 2003/04 to 2007/08, 4312 marine incidents were reported to Marine Safety Victoria (now TSV) and recorded on the Marine Incident Reporting (MIR) system. Of these, 676 were serious incidents. The remaining 3636 were response only incidents. As indicated in section 2.2 of this RIS, the MIR data only provides a snapshot of actual incidents. The number of incidents recorded, particularly in some categories, is significantly lower than the number actually occurring. Nevertheless, it does serve as the main available source of data on contributing factors.

The Monash University Accident Research Centre (MUARC) prepared a five year review of marine safety in Victoria (2009) using MIR data provided to it by Marine Safety Victoria. MUARC found that the factors contributing to marine incidents were as follows (refer to Table 5.1).

Several observations can be drawn from Table 5.1.

First, it is clear that most of the serious incidents which occur are caused by human factors. While the table does not show it, it is clear from MUARC's report that two human factors, namely error of judgement and inexperience, account for more than half of all factors that cause serious incidents.

Second, the table shows that (reported) incidents caused by material factors are, on average, less serious than incidents caused by other factors. For example, in the period from 2003/04 to 2007/08, material factors contributed to 2607 incidents in total. 2506 of these were response only incidents and 161 were serious incidents. Therefore, 6 percent of incidents that were attributed to material factors were 'serious'.

The fact that incidents caused by material factors are less serious than those caused by other factors is likely to be due to the effectiveness of the marine rescue systems in place. Every year there are hundreds of incidents in Victoria where people are stranded on their boats and unable to return to shore without assistance. In the absence of an effective marine safety regime, including an effective search and rescue mechanism, many of these incidents would result in serious injury or death. The fact that there have been very few deaths and injuries shows that, in the vast majority of cases, the marine safety regime is effective. This is a strong argument for retaining it.

Table 5.1 – Marine incidents – contributing factors 2003/04 to 2007/08

Incident severity		Serious incident		Response only incident	
Factor group	Factor	N	%	N	%
Human	All	598	60.2	1336	31.9
Environmental	All	214	21.5	197	4.7
Material	Equipment failure	36	3.6	621	14.8
	Machinery	33	3.6	1237	29.5
	Inadequate stability	28	2.8	13	0.3
	Hull failure	16	1.6	12	0.3
	Electrical equipment	12	1.2	561	13.4
	Inadequate buoyancy	7	0.7	1	<0.1
	Rig failure	4	0.4	27	0.6
	Navigation equipment	1	0.1	6	0.1
	Fuel system blockage			66	1.6
	Flooded motor			1	<0.1
	Other material factor	42	4.2	113	2.7
<b>Subtotal – material factors</b>		<b>179</b>	<b>17.9</b>	<b>2658</b>	<b>63.4</b>

Note: there are frequently several contributing factors recorded per incident.

Data source: MUARC 2009

However, it can also be seen from the table that marine safety incidents attributable to material factors (material factors incidents) place a significant drain on marine safety resources, in particular the search and rescue systems in place. Therefore, in this Chapter we consider the possibility that increases in the marine safety regime may provide net benefits to Victorians by reducing the number and cost of material factors incidents.

In particular, we consider the possibility that introducing a regime of safety checks, applicable to either the vessel generally or to particular aspects of it, may improve marine safety outcomes. At present no such regime applies in Victoria.

As discussed in Chapter 2, there are a number of reasons why individual boaters may not make optimal decisions – in this case regarding the maintenance and condition of their vessel.

The rational decision for boaters is to maintain their vessel to the point where the cost of doing so does not exceed the (expected) benefit it provides them. This would result in vessels being maintained in their optimal condition from the individual's point of view, inclusive of risks they are willing to take, for example, the risk of breakdown. However, because the individual will not be required to pay the true cost of search and rescue, the choice of the individual is distorted in favour of taking the risk rather than minimising it. This is one of the rationales for considering intervention.

A further argument in favour of intervention is that passengers on the vessel will not know of the decisions made by the vessel owner in relation to vessel condition and therefore will not base their decisions (i.e. to accept risk or avoid it) on a full understanding of the risks involved.

While both of these circumstantial factors warrant a consideration of the merits of intervention the mere presence of "imperfect information" and potential for "externalities" does not justify regulatory intervention. It must be proven that regulatory options are available that can improve outcomes. Furthermore, there needs to be a reasonable expectation that the benefits of any feasible option will outweigh the costs.

## 5.2 Objective of the regulations

The objective of the interventions considered here would be, if they were introduced, to reduce the cost to Victorians of material factors incidents.

## 5.3 The base case

The base case is that the proposed regulations would not be made, although the requirements of the *Marine Safety Act 2010* (the Act) would apply.

In the base case there would be no requirement that vessels comply with prescriptive standards or be subjected to safety inspections. A recreational vessel, in the base case, could quite easily go through its useful life without undergoing a condition inspection.<sup>4</sup>

This does not mean that, in the base case, it would be permissible to operate an unseaworthy vessel. Pursuant to section 87 of the Act, in the base case it would be illegal to operate, or knowingly cause or allow a person to operate, an unsafe vessel. The Act provides that a vessel would be considered unsafe if its operation may endanger any person because of its condition or the condition of equipment installed on it.

In the base case, this requirement would stand alone, with no regulations to support it. DOT is concerned that the definition in the Act is not sufficiently specific regarding what constitutes a contravention. In particular, the fact that the existing offence provision has subjective elements makes it difficult to proactively enforce – because the only available method of enforcement is through the court system (rather than through the issue of infringement notices).

In order to enable the existing requirement to be proactively enforced a minimalist option would be to describe an “unsafe” vessel in more prescriptive terms and enable this requirement to be enforced more readily. This option is discussed in section 5.8.

## 5.4 Identification of feasible options

The number and cost of material factors incidents can only be reduced by improving the condition of Victorian boats, i.e. by removing the material factors which contribute to incidents. To reduce risk boats must be well constructed and well maintained. The question for government is how to bring about an improvement in the general condition of the fleet of recreational vessels registered in Victoria and thereby reduce the number of incidents that will occur in future.

There are three broad approaches that could be considered, namely:

- improve information regarding the risk;
- reduce the cost of the solutions (to the boater); and
- mandatory approaches.

### 5.4.1 Improve information regarding the risk

The most light handed of the three possible approaches to improving the general condition of the fleet would be an information campaign targeted at recreational boat owners and operators, providing information about the risk of material factors incidents and what can be done to prevent them.

Such a campaign may include television and radio advertising, or might be limited to posting notices at boat ramps and marine refuelling facilities and attaching notices or flyers to boat registration forms.

If the full range of risks was to be targeted these flyers could remind boaters of the dangers using vessels in poor condition and the importance of performing regular maintenance and check-ups to ensure that the likelihood of incidents is minimised. Alternatively, they could be more targeted, providing information specific to particular risks.

### 5.4.2 Reduce the cost of the solutions (to the boater)

The second option for reducing the number of material factors incidents is through a program of rebates which would reduce the cost of maintaining vessels.

As with the information approach, the rebates could be made widely available if the intention was to target the full range of risks. Alternatively, they could be applied only to particular equipment designed to prevent specific types of incident.

<sup>4</sup> The verification of registration details discussed in Chapter 4 is not proposed to include a condition inspection.

### 5.4.3 Mandatory equipment requirements

If the full range of risks was to be targeted the Victorian Government could introduce a requirement that all new boats must be built to a certain standard, such as an Australian Standard. In itself this would have only a modest effect on safety as it would only 'capture' new boats. Boats are durable, with the average Victorian boater replacing their boat approximately every 8 years (Ernst & Young, 2009, p. 51). Not all replacements are with new boats, rather some are 'upgrades' to a (newer) second hand boat. Therefore, it would take some time for the fleet to be replaced with boats built to the standard if it was only applied to new boats.

This approach could be extended to deal with existing boats by requiring that all boats are maintained so that they meet that standard at all times. This would be a stringent requirement, and would potentially be problematic as the standard evolved - boats could be 'stranded' by changes in the standard.

An alternative would be to take a narrower approach to improving the condition of the fleet and focus on individual material factors. The benefit of this approach would be maximised by focussing on the factors which contribute to the greatest problems, in terms of both number and severity of incidents. Generally speaking, this would involve identifying individual aspects of a boat which are prone to cause material factors incidents and applying standards only to those aspects. By focussing on only high risk aspects of the boat, the cost of this approach may be reduced by more than the benefits.

With either approach the question of enforcement arises. A requirement that vessel condition must meet a particular level, whether broad or narrow, would be less effective if it was not enforced. For compliance monitoring and enforcement to be effective, compliance needs to be assessed through inspections. Inspections could be periodic, for example in connection with the registration process at intervals which are either regular (e.g. every x years) or irregular (e.g. at change of ownership). Alternatively they could be random.

As indicated in section 5.3, a minimalist option which fits under the broader heading of "mandatory approaches" is to simply enable existing vessel condition obligations to be more effectively enforced.

### 5.4.4 Evaluation of options

The conclusion is that only the third option, "mandatory approaches", is suitable. The drawback of the first and second approaches is that the alignment between those enjoying the benefits and those meeting the costs is weak. The benefits are limited mainly to boaters, yet the costs are borne by all taxpayers.

Further, given the very low probability with which relevant incidents occur, it is unlikely that the first two options would make any appreciable difference to general condition of the fleet (i.e. vessel owners could reasonably be expected to continue to disregard the risks despite being more aware of those risks, or alternatively still choose not to invest in maintenance, despite the presence of rebates).

The third approach has the option of the costs being borne by the boating public (e.g. if the cost of inspection was met by the boat owner). Further, to the extent that it would remove the owner's discretion regarding the condition of their vessel, it would be more effective than the first two options and would be likely to lead to a larger improvement in the general condition of the fleet.

It is noteworthy that this is consistent with the Coroner's findings in the recent inquest into an incident at Pier 35 (see Box 1). In particular, the Coroner recommended that the Government move away from information based approaches and pursue more prescriptive options.

Given that it is likely to be both more effective and more equitable than the alternatives, the remainder of this Chapter focuses on the third option, mandatory approaches. For more of the detail of the evaluation of these options please refer to Technical Paper 5.

## 5.5 Case study: Fuel fires and explosions

As discussed in section 5.2 there are a wide range of material factors that cause or contribute to causing marine safety incidents. These could be addressed in a broad way which covers all potential material factors, or a narrow approach could be taken, which seeks to maximise benefits and minimise costs by focusing on the factor that is the most evidently a cause of death and injury. Consideration of the case for addressing fuel fires and explosions is an example of a narrow approach.

The proposition is that if the case cannot be made for a targeted initiative addressing the risks associated with vessels with in-board petrol engines, then there is a high likelihood that it cannot be made for other more broad approaches which involve the specification of comprehensive standards and implementation of fleet wide compliance monitoring and enforcement systems.

There are approximately 30,000 inboard petrol powered vessels currently registered in Victoria. Of these, approximately half are between 4.8 and 8.0 m in length. Similarly, approximately half of all inboard petrol powered vessels are registered as 'open' boats. About 30 per cent of inboard petrol powered boats are PWCs.

A series of recent incidents, such as the explosion of the 36-foot Leda II at Pier 35 in May 2008 which resulted in two deaths, have highlighted the risk that operators of inboard petrol powered vessels face (see Box 5.2).

Notwithstanding the recent incident, petrol vapour fires or explosions have occurred infrequently, even in inboard petrol powered vessels. Between 1999 and 2008, two incidents in Victoria resulted in three deaths. In addition, an estimated 10 hospitalisations and seven emergency department presentations occurred as a consequence of fuel fire incidents over the same period. Data regarding incidents which did not cause injury is less reliable because these are not necessarily reported, but some are known to have happened in recent years. It is estimated that approximately 40 incidents occur in Victoria each year where property is damaged with no injury to people.

#### Box 5.2 The explosion of Leda II At Pier 35

In May 2008 the Leda II, a 36 foot long Halvorsen cabin cruiser powered by twin inboard petrol engines exploded shortly after refuelling at Pier 35, on the lower reaches of the Yarra River. The explosion, which occurred the same day that Leda II had been purchased by its new owner, caused the deaths of two people and caused serious injury to several others.

In his recommendation following the inquest into the Leda II explosion, the Coroner recommended that certain changes be made to the law applying to recreational boating. In particular, it was recommended that inboard petrol powered boats should be surveyed when:

- › they are first built;
- › they change hands; and
- › they are 15 years old or older.

The Coroner's recommendation differs from the approaches analysed here in that there was no recommendation that particular equipment should be mandatory. However, the Coroner's recommendation was similar to the four technical solutions analysed here in that the surveys would reveal any need for repair to the fuel and electrical systems as well as the adequacy of engine compartment ventilation. While it is not certain, it seems likely that a vessel owner would choose to repair a leaky fuel system or poor wiring if a survey report suggested that it created a risk of petrol vapour explosion.

Similarly, the surveys would also reveal the presence or absence of a fuel vapour detection alarm and its condition. These may be seen as more discretionary by vessel owners, though, so a survey report would not necessarily lead to them being installed.

It should also be noted that a survey, as was recommended by the Coroner, is a more extensive assessment of the vessel's condition and would potentially reveal problems relating to risks other than petrol vapour fire. These other issues are beyond the scope of this Chapter of the RIS.

### 5.5.1 Technical solutions

For a petrol vapour explosion to occur, three conditions must be met. First, petrol vapours must be present in the boat in an explosive concentration. Vapours are typically introduced either by spillage or splashing during refuelling or from the fuel system itself, perhaps due to leaking fuel lines or engine parts. Second, an ignition source must be present. This can be "on boat", typically in the electrical system, or "off boat", for which a number of sources may exist, such as cigarettes or mobile phone antennae.

Third, the presence of petrol vapours must be unknown to the boat operator. If the boat operator is aware of the presence of vapours they can reduce the risk of explosion by behavioural means (e.g. by avoiding activities that might introduce an ignition source such as smoking or starting the motor).

There are a number of technical solutions that could be implemented in inboard petrol powered recreational vessels to reduce the risk of petrol vapour fire or explosion. The measures are:

- › fuel leak prevention;
- › spark prevention;
- › fuel vapour detection and ventilation; and
- › fuel vapour detection only.

Adopting any one of these solutions in an individual boat would break the chain of causality leading to an explosion and reduce the risk of petrol vapour fires or explosions.

The technical aspect of each solution is discussed in detail in Technical Paper 5.

To evaluate the mandatory equipment approach it is assumed that the Government would, if it chose to pursue this course of action, mandate (only) one of the four technical solutions, which are described in more detail in Technical Paper 5.

As described in Technical Paper 5, the cost of implementing the four technical solutions on existing boats was estimated using four representative vessels to capture the diversity in the fleet. Vessels 1 and 3 were 6.0m boats with different engine sizes. Vessel 2 was a PWC. Vessel 4 was a large, twin engine cabin cruiser.

In modelling the technical solutions the diversity in vessel condition across the fleet was accounted for by estimating the cost of implementing each technical measure in each representative vessel in 'high', 'medium' and 'low' cost categories.

Broadly speaking, the low cost category represents boats which are very well maintained and would satisfy any of the four technical solutions with no further work. Vessels in the medium cost category are generally well maintained and would only require a small amount of work to meet any of the technical measures. Vessels in the high cost category have not implemented the technical solutions and would incur the full cost of doing so if the regulations were introduced. The cost to vessels in this category is the estimated cost of purchasing and installing the necessary equipment.

Table 5.3 shows the cost of implementing each of the four technical measures on the four representative vessels.

**Table 5.3 – Estimated equipment costs of technical solutions (per boat)**

Vessel	Case	Fuel vapour detection and ventilation (\$)	Fuel vapour detection only (\$)	Spark prevention (\$)	Fuel leak prevention (\$)
1 – 6.0m open	Low	0	0	0	0
	Medium	450	200	1517	960
	High	1000	480	2292	1920
2 – 4.8m PWCa	Low	0	0	0	0
	Medium	200	200	0	0
	High	530	530	0	0
3 – 10m cabin cruiser	Low	0	0	0	0
	Medium	900	400	4095	2763
	High	2089	1517	5395	5878
4 – 6m half cabin	Low	0	0	0	0
	Medium	450	200	1517	960
	High	1000	480	2292	1920

Data source: The Marine Safety Company

### 5.5.2 Assessment of benefits

Petrol vapour fires and explosions on recreational boats impose four separate costs on Victorians. These are the costs of:

- fatality;
- injury;
- loss of property ; and
- rescuing people involved in incidents.

The benefit of measures designed to reduce the cost of petrol vapour fires and explosions is the avoided cost of incidents that they prevent. In this section we briefly summarise the approach taken to estimating this benefit. Further details are provided in Technical Paper 5.



Estimating the benefit of the measures involves estimating the number of relevant incidents which could be expected to happen with no regulatory intervention. This is then combined with an estimate of the loss sustained in each incident individually to provide an estimate of what the total cost to Victorians of incidents would be if there was no regulation. This is the maximum potential benefit the measures could achieve.

Any regulatory intervention is unlikely to be foolproof. Even if the technical measures were made compulsory, petrol vapour fires and explosions would still occur, albeit at a reduced rate. In part this would be due to non-compliance with the regulations. This is taken into account by assigning an efficacy rate to the different options and adjusting the total benefit by this rate.

**Table 5.4 – Estimated cost of petrol vapour fires and explosions by severity**

Incident type	Response costs	Property damage	Injury	Fatality	Total
Fatality incidents	\$ 11,000	\$ 9,000	\$ –	\$ 3,980,000	\$4,000,000
Injury incidents	\$ 11,000	\$ 9,000	\$ 533,000	\$ –	\$553,000
Property damage incidents	\$ 11,000	\$ 9,000	\$ –	\$ –	\$20,000
Vessel condition incident	\$ 11,000				\$11,000

Note: values are shown rounded to the nearest \$1000.

The values in Table 5.4 apply to individual incidents. To estimate the benefits of the measures, it is also necessary to take into account the number of incidents which could be expected to occur each year in the absence of regulatory intervention. In this case it is estimated that petrol vapour fires and explosions will continue in future at the rate at which they have occurred in the past.

**Table 5.5 – Estimated annual number and cost of relevant recreational boating incidents in Victoria**

Incident category	Annual number	Annual cost (in mill \$)
Fuel fire – fatality	0.33	\$ 1.3
Fuel fire – injury	1	\$ 0.54
Fuel fire – property loss	37	\$ 0.74

### Efficacy of measures

Technical solutions break the chain of causation which allows petrol vapour explosions to occur. A proper technical solution effectively makes petrol vapour explosions impossible. Therefore, the efficacy rate assigned to each technical solution was 100 per cent.

This is not the same as assuming that the regulations themselves would be 100 per cent effective as there would be some degree of non-compliance - some boaters would not install the equipment despite the regulations. This is dealt with separately using an assumed 'take up rate'.

The benefit of making one or another of the technical solutions mandatory depends on how much this increases their use (the take-up rate) and on the proportion of boats already fitted with the equipment (the baseline rate). We are not aware of any data concerning the condition of Victorian recreational boats or the take-up of this equipment. For the purposes of this RIS we have assumed that the baseline rate for each measure is 80 percent.<sup>5</sup>

Boats which are not fitted with the technical measures will continue to be at the same risk of fire or explosion as they have been, while boats in which one or another of the measures is implemented will be at reduced risk. Table 5.6 shows the expected (average annual) number of petrol vapour fires and explosions in future for different take up rates.

<sup>5</sup> As discussed below this assumption was the subject of a sensitivity analysis.

**Table 5.6 – Expected number of petrol vapour fires and explosions by take-up rate of technical solutions above the baseline rate**

Take up rate (baseline rate = 80%)	0%	5%	10%	15%	20%
Fatal incident	0.33	0.25	0.17	0.08	0.00
Serious injury incidents	1	0.75	0.50	0.25	0.00
Property damage incidents	43	32	21	11	0.00
<b>Total incidents</b>	<b>44</b>	<b>33</b>	<b>22</b>	<b>11</b>	<b>0.00</b>

If the baseline rate is 80 percent this means that 20 percent of boats are not fitted with the equipment in question. As Table 5.6 shows, if the adoption of the equipment increases by 10 percent, the expected number of fatality incidents falls from 0.33 per annum to 0.17 per annum, i.e. it is cut in half because only half as many boats are now 'at risk' of fuel fires or explosions. With a baseline rate of 80 percent if the adoption of the equipment is increased by 20% this amounts to all boats being fitted. In this extreme case the model assumes that no fuel fire incidents will happen, although in practice this is unlikely to occur.

#### Present value of benefits

Aggregating over the entire fleet of inboard petrol powered recreational vessels in Victoria, the present value of benefits from increased adoption / implementation of any one of the four solutions (fuel vapour detection and ventilation, fuel leak prevention and spark prevention) is estimated to be as shown in Table 5.7.

**Table 5.7 – Benefit of technical solutions by take-up rate above the baseline rate of 80%.**

Take-up rate	0%	5%	10%	15%
10-year horizon	\$ –	\$5,662,221	\$11,324,443	\$16,986,664

Note: the 20% take-up rate (100% total use of equipment) is considered unattainable and is not presented.

Data source: ACIL Tasman modelling

### 5.5.3 Assessment of costs

The cost of the regime depends on two things, the cost of the equipment which must be installed (Table 5.3) and the cost of compliance. As far as the compliance / enforcement aspect is concerned, two options have been considered.

In the first option, a requirement would be introduced that all inboard petrol powered recreational vessels have an up-to-date certificate verifying their compliance with the relevant measure. The certificates would be obtained at inspections, which would be conducted by appropriately qualified and authorised people in the private sector. Certificates would need to be updated periodically. In the modelling inspections were required either annually, five-yearly or ten-yearly.

The second alternative would be to rely on a program of random inspections for compliance by authorised officers. Non-compliance would lead to a penalty.

In the first case the boater would pay the cost of the inspection directly while in the second case the cost would be paid by the taxpayer. For the cost benefit analysis, who pays the cost is not relevant.

The cost of random audits is the same in terms of inspector time but the owner time was removed to account for the fact that the owner would not need to take the vessel to an inspector. Another difference between random and periodic testing is that, with a random approach, there is a chance that a given boat will never be audited. This would leave greater room for non-compliance.

**Table 5.8 – Total cost of technical measures by inspection frequency.**

Measure	Inspection type	10 year horizon (\$)
Spark prevention	Annual	\$ 67,987,802
	Five yearly	\$ 29,956,201
	Ten yearly	\$ 18,731,311
Leak prevention	Annual	\$ 61,980,466
	Five yearly	\$ 24,034,684
	Ten yearly	\$ 18,731,311
Fuel vapour detection and ventilation	Annual	\$ 54,542,816
	Five yearly	\$ 16,703,287
	Ten yearly	\$ 11,399,913
Fuel vapour detection only	Annual	\$ 28,127,198
	Five yearly	\$ 6,704,039
	Ten yearly	\$ 3,587,469

#### 5.5.4 Summary – mandatory equipment measures to prevent fuel fire incidents

The efficacy of each of the four technical measures is the same as long as the adoption rate is the same - i.e. benefits are constant. Therefore, whichever of the measures can be implemented with the lowest cost will provide the highest benefit cost ratio.

The fuel vapour alarm approach is the lowest cost of the technical solutions. Therefore, it has the highest benefit cost ratio for any given take-up rate.

If a fuel vapour alarm becomes mandatory, boaters will face an increased incentive to install one on their vessel. A level of non-compliance is to be expected, as is the case with current safety requirements. For at least some boaters, the decision to install the newly mandatory equipment would depend on the risk of penalty. Therefore it is appropriate to explore the benefit cost ratio at a range of take-up rates and baseline rates.

The range of estimated benefit cost ratios for the annual, five yearly and ten yearly inspection regimes are shown in Table 5.9 below. The table shows that, there is reasonable confidence that the benefits of a mandatory fuel vapour alarm measure would not exceed the costs if coupled with annual inspections. In other words, there is reasonable confidence that the benefit cost ratio of this measure is less than one. By contrast, there is reasonable confidence, that the benefits of the mandatory fuel alarm approach would exceed the costs if coupled with either a five or ten yearly inspection regime.

**Table 5.9 – Confidence intervals for BCR of mandatory fuel vapour alarm measure**

	Lower bound	Upper bound
Annual	0.6	0.8
Five yearly	1.8	2.5
Ten yearly	2.9	4.1

It is important to remain aware, though, that these results are based on the assumption that whichever inspection frequency is chosen it will result in a ten per cent uplift in usage of the fuel alarm. This is counter-intuitive because it is reasonable to expect that compliance will reduce significantly if inspections were to be undertaken only every 5 or 10 years – the exception being immediately before an inspection is scheduled to take place. Equally, compliance would be low if the number of random inspections meant that the chance of an owner's vessel being inspected was only once every 5 or 10 years. So care needs to be taken in interpreting the real likelihood of obtaining the 5 year and 10 year BCRs that are shown to be over 1 in Table 5.9.

### 5.5.5 A narrower approach – Coroner’s recommendation

Following the incident at Pier 35 in May 2008 the Victorian Coroner recommended that certain changes be made to the law applying to recreational boating (see Box 5.2). In particular, it was recommended that inboard petrol powered boats should be surveyed when:

- › they are first built;
- › they change hands; and
- › they are 15 years old or older.

In addition, the Coroner recommended that inboard petrol powered vessels should only be eligible for registration if they meet certain physical conditions similar to the technical solutions discussed above.

The first of the Coroner’s recommendations is similar to requiring that all vessels should comply with an appropriate standard when first built.

The second recommendation is between the five and ten yearly inspection rate discussed above given that, on average Victorian recreational vessels change hands once every eight years.

The implications of the third recommendations have been assessed (refer to Technical Paper 5 for the details of this assessment). The benefit cost ratios are as shown in Table 5.10 below.

Table 5.10 – Benefit cost ratios of Coroner’s approach.

Take-up rate	5%	10%	15%	20%
Annual inspections	0.08	0.16	0.24	0.32
Five yearly inspections	0.14	0.28	0.43	0.57
Ten yearly inspections	0.16	0.32	0.48	0.64

These benefit cost ratios are not close to one, which suggests that there is reasonable confidence that the costs of these measures exceed their benefits. This is an important conclusion for a number of reasons, but in the context of this RIS the most important reason is that it demonstrates that even in the most specific and well targeted instance, there is not a reasonable expectation that there will be net benefits.

## 5.6 Broader approaches

Section 5.5 of this Chapter presents the outcomes of an analysis of a narrow approach to addressing marine safety incidents caused by material factors. This was done by focusing on a subset of incidents, namely fuel fires on inboard petrol powered vessels. In section 5.5.5 the focus is narrowed further to a subset of these vessels.

However, material factors contribute to more incidents than just these. It would be possible to address a broader range of material factors incidents using the same basic approach described above by introducing a regime of seaworthiness checks for recreational vessels. Broadly, the Victorian Government could:

- › introduce a requirement that vessels must be kept to a specified standard; and
- › require that vessels are inspected, either randomly or periodically, to assess their compliance with that requirement.

This is very similar to the first and second recommendations of the Coroner following the Leda II incident. The merits of such an option have been assessed and the details of that assessment are provided in Technical Paper 5.

To avoid confusion, it should be noted that, unlike the analysis of fuel fire measures in the preceding sections, the analysis of the seaworthiness checks measure is **not** limited to inboard petrol powered vessels. In fact, the following analysis includes all categories of powered recreational vessel.

### 5.6.1 Results

The estimated benefit cost ratios (BCRs) for the broad seaworthiness check option, assuming a 50 per cent efficacy rate, is shown in Table 5.11 by frequency of inspections. Note that BCRs are overestimates because not all costs have been quantified. Only the costs of inspections have been quantified. The costs of actually fixing or addressing deficiencies has not been included because it is not possible to predict these costs.

**Table 5.11 – Benefit-cost ratio of seaworthy checks measure – annual, 5-yearly and 10-yearly inspections**

	BCR over 10 year life of regulations
Annual	0.08
Five yearly	0.36
Ten yearly	0.71

Data source: ACIL Tasman

Because none of the BCRs are over 1 it is clear that none of the options would generate net benefits.

## 5.7 Conclusion

This Chapter presented a summary of cost-benefit analysis of a possible regime of vessel safety standards and condition checks for Victorian recreational vessels. It did this by focusing first on a subset of the broader issue, namely fuel fires on inboard petrol powered recreational vessels. Four technical solutions to this problem were identified

The measures are as follows:

- Fuel leak prevention – a requirement that the vessel's fuel system is made sufficiently free of leaks that a dangerous build up of fuel vapour is unlikely to occur.
- Spark prevention – Requiring that the vessels electrical system be rendered 'intrinsically safe' in that no equipment that may cause a spark may be located in a confined space.
- Fuel vapour detection – a requirement that a fuel vapour detection system be installed, possibly with an ignition interlock.
- Fuel vapour detection and ventilation – the above with a further requirement for mechanical ventilation to remove fuel vapour when detected.

These measures would be intended to reduce the number of fuel fire incidents.

The cost-benefit analysis was prepared on the basis that periodic inspections of recreational vessels would be performed to ensure compliance with whichever measure(s) is implemented. In practice, a requirement would be introduced that all inboard petrol powered recreational vessels must have an up-to-date certificate verifying compliance with the relevant measure. The certificates would be obtained at inspections, which would be conducted by appropriately qualified and authorised people in the private sector. Certificates would need to be updated, and therefore inspections would be required, either annually, five-yearly or ten-yearly.

The cost benefit analysis showed that the benefits of this type of regime would only exceed the costs if inspections were infrequent (ten yearly) and the efficacy was high, i.e. a large proportion of incidents which might have happened without the regulations are prevented. There is no data to allow a firm conclusion about whether this is likely to be achieved, but it seems unlikely.

First, it seems reasonable to expect that as the inspection frequency is reduced, non-compliance with the measure would increase, as satisfactory inspections would be an incentive for compliance. In other words, the take-up rate would decrease with the inspection rate. This has not been taken into account in the modelling and is a reason why the results should be interpreted with care.

Second, this result highlights the possibility that, while the costs of the proposed measures outweigh their benefits as they are proposed, it may be possible to improve the BCR if the cost of compliance with the regime can be reduced while still preserving its efficacy. This may be achieved by targeting inspections towards vessels with similar characteristics to those that have been involved in previous incidents or with characteristics which are identified as high risk by other means.

This is consistent with the Victorian Coroner's view in the recent Leda II case. In that case, the Coroner recommended that all recreational, inboard petrol powered motor cruisers and other similar vessels more than 15 years old should be surveyed due to the heightened risk that they are in unsafe condition.

In the Leda II case, the Coroner also recommended that all inboard petrol powered vessels should be inspected when first registered and each time their registration changes thereafter. While it is not clear that this would necessarily target 'problem' vessels, it may reduce the compliance cost of the requirement.

In summary, the highest BCR, and therefore the best return to regulatory cost, would be achieved by a measure which prevents more incidents with fewer inspections than another. However, analysis of the merits of the specific recommendations of the Coroner – to establish a system of safety checks for vessels more than 15 years old with inboard petrol engines – suggests that this measure is unlikely to produce net benefits (refer to Table 30).

### Seaworthiness checks

Building on the analysis of the fuel fire prevention measures this Chapter also presents an analysis of a potential regime of inspections, or 'seaworthiness checks', for all recreational vessels. These would be designed to reduce the number of marine safety incidents attributable to vessel condition.

As the analysis shows, the BCR is not close to one under any of the scenarios which were considered. In other words, the costs of the seaworthiness checks measure outweigh the benefits in all cases. This conclusion is strengthened by the fact the analysis does not take account of the cost of rectifying problems that are identified. If this cost was considered the BCR would be lower still.

As with the fuel fire measures, if the cost of compliance with the seaworthiness checks measure could be reduced without significantly reducing its efficacy in preventing incidents, the BCRs would change and the benefits would go closer to outweighing the costs. Generally, the BCR is low because most of the costs are imposed on owners of seaworthy vessels, who do not derive any direct benefit from the measure.

## 5.8 Summary of the proposed regulations

DOT does not propose any regulations which introduce standards for recreational vessels or specify prescriptive requirements (e.g. installation of vapour alarm), because the analysis demonstrates that these measures will not result in net benefits. The analysis demonstrates that net benefits would only be achieved when:

1. the size of the problem is small, i.e. when only 5-10% of the fleet (or relevant subset of the fleet) is in inadequate condition or does not have the equipment that is needed to make the vessel safe; and
2. the level of compliance achieved with the new requirements is high despite the frequency of inspection being very low (in the region of 1 inspection every 10 years).

Condition 2 is unrealistic - a high level of compliance would only be achieved if there was a belief (rightly or wrongly) that non-compliance would be detected and enforcement action taken. If condition 1 is the case and there is little or no "problem" then the inherent risk of intervention outweighs any potential benefits.

Fundamentally, the analysis reflects the fact that there are very few fatalities and serious injuries which can be attributed to the poor condition of vessels or the lack of safety features on vessels. Even when the proposed intervention is targeted on the most prominent and evident source of risk (inboard petrol engines in older vessels) the analysis demonstrates that net benefits are unlikely to be achieved.

*Question: Do you agree with this result? Or do you believe that the analysis is flawed in some way? If so, how?*

*Question: Do you support the establishment of standards for recreational vessels and a system of safety checks? If so, what evidence supports your view?*

Given the results of the analysis, DOT believes that scarce enforcement resources are best focused on enforcing the (already significant) existing range of marine safety requirements.

One of the existing requirements is to not operate, or knowingly cause or allow a person to operate, an unsafe vessel – noting in particular – that a vessel is considered unsafe if the operation of the vessel may endanger any person because of the condition of the vessel or because of the condition of equipment installed on the vessel.

In practice, due to the lack of specificity regarding what constitutes a contravention, it is not possible to monitor compliance with or enforce this requirement except when death or injury has already been suffered, i.e. the condition of the vessel or equipment is often only found to be a contributing factor as part of an investigation after an incident. In some circumstances this may lead to prosecution.

To improve safety and prevent incidents, it is proposed to enable pro-active enforcement of the requirement to not operate unsafe vessels, as an adjunct to normal compliance monitoring and enforcement operations. This is proposed to be achieved by specifying particular circumstances where a vessel would be regarded as being "unsafe" because of the inadequate condition of the vessel or equipment installed on the vessel.

From a practical perspective this will be useful when the Water Police (or other enforcement officers) pull over a vessel to warn or sanction a vessel master, or conduct an inspection of the vessel to confirm the carriage of safety equipment. The proposal is to enable officers, when on board a vessel, to use their discretion to make further checks or tests to identify whether:

- › there is a hole in the hull;
- › there is fuel leaking from the fuel system or engine;
- › the steering system does not control the movement of the vessel;
- › ventilation systems are not functioning;
- › if material insulating machinery in the vessel from fire or flammable materials is missing or damaged;
- › if materials or items comprising part of the vessel's reserve buoyancy are missing or damaged; or
- › if engine kill switches are fitted to the vessel and are inoperable.

These are defined as circumstances where the vessel is not "fit for purpose" or "unsafe". The proposed regulations make it a condition of registration to not cause or allow a vessel to be operated unless it is fit for purpose. It is proposed that these regulations would be able to be enforced through the use of infringement notices.

Without such regulations enforcement officers have little capacity, in a practical sense, to act to address breaches of the requirement to maintain vessels in a safe condition – excepting in the most severe cases – when it is appropriate to detain "unsafe" vessels in accordance with section 85 of the *Marine Safety Act 2010*. It is for these reasons that the proposed regulations are considered warranted.

*Question: Do you agree that if the safety features of your vessel are not working then it is not fit for purpose and possibly 'unsafe'?*

*Question: Do you agree with the proposed regulations characterisation of circumstances when the condition of the vessel has made it unsafe? If not, why?*

*Question: Do you believe that it would be difficult or costly to comply with the requirement to ensure the hull is watertight, the steering system works, there are no fuel leaks, etc? Do you think that the effect of the proposed regulation is more than what is intended by the prohibition of the operation of unsafe vessels?*

*Question: Do you have any further suggestions regarding what the proposed regulations should cover? In your view, what feature(s) of a vessel need to be maintained in order for it to remain in a safe condition?*

In practice, these regulations would be applied in the context of what safety features the boat has. For example, the regulations would require that whichever type of kill switch is fitted to an individual boat is functioning properly, rather than requiring that kill switches are fitted. The same would apply to ventilation systems, i.e. if they exist, they need to function, if they don't exist, they don't need to be established.

Similarly, they would require that a boat's fuel system is free of leaks and that it is watertight, although they do not specify how this must be achieved. Given that this is the way the regulation is proposed to operate a potential risk is that there is incentive to remove safety features rather than maintain them. In practice, DOT believes this is unlikely because the time and effort of removing such features (and evidence of their removal) is significant in itself and therefore likely to discourage such practices.

*Question: Do you think there is a risk that some vessel owners will respond to the proposed regulation by removing safety features instead of maintaining them?*





## 6. Marine licences and endorsements

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The *Marine Act 1988* currently requires all recreational boat operators to be licensed. Operators aged 12 to 16 years can apply to hold a "restricted" licence, but to hold a full recreational boat operator licence a person must be over 16 years of age. To operate a PWC, an operator must also have his or her licence endorsed.

To obtain a marine licence an applicant needs to successfully pass a knowledge-based multiple choice test which is administered on behalf of TSV by VicRoads or one of the accredited training providers. To obtain a PWC endorsement operators are required to pass a test involving a further set of multiple choice questions. The tests are based on addressing elements of the three units of competency articulated in the nationally agreed guidelines for recreational boat licences. The three units of competency relate to pre-trip planning, vessel operations and emergency procedures.

The *Marine Safety Act 2010* incorporates some subtle but important changes to these arrangements. The Act requires masters of vessels to be licensed, rather than operators (of which there may be multiple). The significance of this change is that it permits unlicensed persons to operate a vessel when under the direct supervision of a licensed master. This change will provide a more accessible learning pathway for persons entering into recreational boating.

At present, practical skills-based learning (for example, by taking control of the helm) is not permitted unless a licence has already been obtained. Limiting the capacity for persons to learn from more experienced operators is counter to the aim of improving the knowledge and skills of persons involved in recreational boating. This is why the new Act focuses on the licensing the master: the person "in command or in charge", rather than the person(s) who may be able to control or influence the movement of the vessel at a particular point in time.


This change will, in particular, reduce the regulatory burden on persons aged 12 to 16 years. Only those in this age group who wish to operate unsupervised will be required to obtain a restricted licence. This approach is consistent with that which currently applies in Western Australia.

The *Marine Act 1988* currently requires those persons wishing to operate a PWC to have their licence endorsed. There is no capacity to increase the array of endorsement requirements as a response to changing risks in the marine environment.

The new Act enables licence endorsement requirements to be prescribed by regulations. This flexibility was included so that there would be capacity to use licensing requirements to respond to emerging risk issues and trends in safety outcomes.

An option for the endorsement scheme is therefore that new applicants for marine licences be required to obtain an endorsement to act as the master of a vessel of a prescribed type or class, or to act as the master of a vessel undertaking a prescribed type of activity. This is analogous to motor vehicle licence requirements - for example, licence endorsements required before persons can drive a motorcycle, truck or bus.

Endorsements provide a useful means of prompting the persons who wish to be the master of a certain type of vessel or the master of a vessel engaging in a certain type of activity to acquire the knowledge and skill that is necessary to do so safely. Endorsements enable the setting of requirements in a targeted way with a view to maximising safety benefits and minimising compliance costs. As indicated, this approach is preferred to the status quo arrangements which only provide the option to require all applicants to demonstrate such knowledge and skills even if they have no intent to operate the specific type of vessel or undertake the specific type of activity.



An operator must pass a test in order to obtain a licence or licence endorsement. The *Marine Act 1988* provides the discretion to the Safety Director to determine the tests or training that must be undertaken. The new Act limits this discretion by specifying that the test or training for a licence or endorsement must be of a 'prescribed type'. So if the regulations were to specify that the type of test applicable to a marine licence (or endorsement) is a knowledge test only then the Safety Director would not be able to require skills based testing or training.

A licence endorsement requirement and/or testing or training requirement will only be prescribed in the regulations if it is expected to produce net benefits. That is, there needs to be a reasonable expectation that the safety benefits of improving the knowledge and skills of a subset of recreational boaters exceeds the costs associated with requiring those persons (i.e. those wishing to engage in the activities to which the endorsement relates) to undergo the pre-requisite training and testing required to obtain the endorsement. Based on analysis of safety data and risks, a number of endorsement requirements may be warranted. For example, endorsements may be required for operating PWC (existing already), or for operating a vessel involved in towed water sports. However, even if the case can be made for new endorsements or testing, it is not feasible to implement new endorsements in the short term (prior to 2011/12 boating season) due to the time required to put in place new training and testing infrastructure.

For these reasons, consideration of the merits of endorsement options (beyond the proposed continuation of the PWC endorsement) is not included in this RIS. Instead the report: *Options Paper for Marine Licensing in Victoria* has been released for public consultation at the same time as this RIS. The purpose of this report is to canvass specific options for prescribed types of tests and training as well as options for licence endorsements. Included in this report is DOT's analysis of the merits of these options.

## 6.1 Nature and extent of the problem

As discussed in Chapter 2 of this RIS, a form of "market failure" can occur when there is an asymmetry of information between persons involved in a transaction which distorts the decision making of one or more parties to the transaction. In the marine context, the decision to make use of a vessel for transport or recreation as a passenger is a decision to place trust in the knowledge and skill of the master and crew to operate the vessel safely. In almost all cases, there is little information to assist passengers in making the decision to either take this risk or not, and the person may not be in a position to make an informed decision in any event. It is for this reason that governments have tended to intervene in both the commercial maritime and recreational boating sectors to:

- prompt the attainment and maintenance of knowledge and skills that are required; and
- provide public confidence and assurance that masters of vessels and their crew have sufficient competence to be safe.

The aims of intervention are not only important for passengers, but also for masters of other vessels and other water users who seek assurance that the masters of vessels with whom they interact know the rules of navigation (and the relevant waterway rules) and will follow them to avoid, for example, collisions with their vessels. The analogy in the road context is that drivers wish to be assured that other drivers know that it is convention to drive on the left hand side of the road and to stop when traffic lights are red. If such basic assurances cannot be provided then it would provide for chaotic traffic conditions. Equally in the marine context, knowledge of, and adherence to rules of navigation is critical to safely managing competing demands for use of State waters.

The decision to retain licensing requirements for the masters of recreational vessels has already been made through the passage of the *Marine Safety Act 2010*. Given this, the decisions to be made when making the proposed regulations are: what knowledge and skill thresholds should be set, and what are the most efficient and effective means to administer the licensing system? However, as indicated, the question of the thresholds to be set (and for what activities) is the subject of a concurrently released Options Paper. Accordingly, this Chapter of the RIS focuses on the second question – the administration of the licensing system – and seeks to justify the continuation of current licensing thresholds in the short term.

## 6.2 Objectives of the proposed regulations

The objectives of the proposed regulations pertaining to marine licences and endorsements are to:

- › promote the safety of marine operations;
- › improve the effective management of safety risks in marine operations and in the marine operating environment; and
- › support and maintain public confidence in the safety of marine operations, by only allowing those who have demonstrated a sufficient competence to act as the master of a recreational vessel.

This is consistent with the purposes of licensing specified in section 45 of the *Marine Safety Act 2010*:

- a. to ensure that people who are in charge of or in command of registered recreational vessels are competent masters;
- b. to ensure that those masters are aware of safe operating practices and relevant marine safety laws;
- c. to ensure that people who are, or who become, unsuited to be the master of a registered recreational vessel are not permitted to be the master of a registered recreational vessel; and
- d. to enable the identification of masters for the purposes of law enforcement and the investigation of, and response to, marine incidents and accidents.

An equally important objective is to minimise the costs imposed on recreational boaters to only those costs which are necessary to achieve the specified purposes of licensing and that can be justified on the grounds that there is a reasonable expectation that the benefits of licensing exceed the costs.

## 6.3 The base case


The *Victorian Guide to Regulation* requires that for new regulations or for regulations which are sunseting, RIS should assume “zero” or no regulations as being the base case against which the proposed regulations and feasible alternatives should be assessed.

While there is some scope for specifying exemptions, it is not practicable to have a licensing system without regulations specifying procedural requirements i.e. how a person can apply for or renew a licence. The Act envisages that regulations will be made to specify procedural and information requirements as well as providing the Safety Director with sufficient authority to enforce these requirements.

Sections 53(1) and 54(1) of the Act set out the authority provided to the Safety Director to grant or renew marine licences and restricted licences “in accordance with the regulations”. Sections 53(4), 54(4) and 55(1) envisage that a person will make application for a licence or endorsement in accordance with the requirements specified in the regulations. Further, it is envisaged that the Safety Director will be able to, “in accordance with the regulations”, impose conditions, vary conditions or refuse to vary conditions. By implication, licence holders will have the right to apply to vary conditions “in accordance with the regulations”, for example if a medical condition is eliminated.

So, while the base case of no regulations is always the starting point, in some cases it is clear that not having regulations would frustrate the intent of the Act and that having regulations is clearly superior to the option of having no regulations. The subject of analysis and considerations in these areas is therefore less on whether any regulations can be justified and more so on what regulations can be justified on the grounds that they would best satisfy the specified regulatory objectives.

The continuation of the knowledge based test for marine licences and restricted licences cannot be considered to be the base case because regulations are required to authorise the Safety Director to require applicants to undergo a test of this type.



However, if there were no regulations providing such an authorisation then the likely response of the Safety Director would be to use his/her discretion (under Sections 53(2)(a)(i), 54(2)(a)(i) and 55(5)(a)(i) of the Act) to require applicants for marine licences to undergo a training course of the type currently offered by accredited training providers. 70% of applicants already opt to undergo this training, however, it would be the second best option for the 30% who believe they have enough knowledge to sit the test without undertaking the course. In addition, it is reasonable to expect that the effectiveness of this option would suffer as a result of there being no credible risk of failure (associated with the test). For these reasons, the status quo option of the “test of knowledge” is, holding all else constant, likely to be marginally less costly than the base case scenario envisaged and is also likely to be more effective. Importantly, it is reasonable to assume that modeling costs and benefits of this status quo option would approximate the costs and benefits of the base case and can therefore serve as a substitute for the base case in relation to the assessment of costs and benefits and feasible options.

## 6.4 Identification and consideration of feasible options

The remaking of the existing requirements specified in the *Marine Regulations 2009* is an option that can be categorised as retaining the “status quo”.

The status quo requirements, which were established in 2000-01, are based on the road safety regulations for motor vehicle licensing. These regulations have evolved over decades in order to achieve the purposes of licensing, which are spelt out in road safety legislation. Refinements have been made over time to minimise administrative and compliance costs and improve regulatory efficacy. In respect of this history of evolution, the status quo serves as a legitimate starting point for the consideration of options<sup>6</sup>.

### 6.4.1 Scope of parties required to be licensed

Masters of recreational and hire and drive vessels are generally required to be licensed, but there are exemptions provided under the Act already, and there is a capacity to provide exemptions under the proposed regulations.

The Act provides exemptions for holders of marine licences issued in other Australian jurisdictions and other countries if such persons are only visiting State waters and not residing in the State (section 57). If the person resides in the State then the person has three months to apply for a Victorian licence. The licence issued in the other jurisdictions can be used as evidence that the person has the pre-requisite knowledge and therefore does not have to undergo the test. This exemption gives effect to the intent of the intergovernmental agreement on mutual recognition.

The other exemption explicitly provided in the Act is conferred on masters of vessels using wind or human power as the method of propulsion - e.g. yachts (Section 58).

In considering whether further exemptions should be granted DOT considered the purposes of licensing and the extent to which these purposes can be satisfied by persons without them having to be licensed. Two options presented themselves for consideration:

1. granting exemptions to the holders of certificates of competency; and
2. granting exemptions to the masters of vessels with low powered motors (less than 4.5KW).

#### Exemptions for the holders of certificates of competency

The holders of certificates of competency have already demonstrated sufficient knowledge and skill to gain commercial qualifications. The threshold that needs to be satisfied to obtain these qualifications is far superior to that required to obtain a marine licence. This is why under the current arrangements certificate of competency holders are exempt from having to take the test. However, under these arrangements certificate of competency holders are still required to obtain a marine licence.

The proposed regulations grant exemptions to the holders of certificates of competency. However, holders of a certificate of competency from another jurisdiction would be required to obtain a licence<sup>7</sup> to ensure that such persons make the required contribution towards the costs of marine safety regulation in Victoria. Holders of certificates of competency who have conditions on their certificates which relate to health and fitness will need to apply for a licence so that the Safety Director can determine whether the person's condition or lack of capacity would impede them from operating a recreational vessel safely.

<sup>6</sup> Technical Paper 6 provides a more detailed assessment than that which follows.

<sup>7</sup> It is proposed to continue the exemption from testing requirements for such persons. They would only need to present their certificates of competency and pay the applicable fees in order to obtain a marine licence.

### Exemptions for low powered vessels

Low powered vessels typically operate in similar contexts to wind and human powered vessels, and accordingly some of the arguments for not requiring the masters of these types of vessels to be licensed are equally applicable here. Indeed, the engines on such low powered vessels are typically only fitted for the purpose of supplementing human or wind power.

As indicated in the DOT discussion paper released in 2009 (*Improving Marine Safety in Victoria*, pp138-141), some jurisdictions (e.g. Queensland and WA) do not require people to have a licence to operate a recreational vessel powered by a motor less than 4.5 kilowatts (6 horse power). The fact that some other jurisdictions have chosen not to require licences for operators of low-powered vessels suggests that the risks of operation are low. There may also be an argument that not requiring licences in these situations in Victoria would promote national consistency. However, the consultation undertaken in 2009 did not substantiate any support for this change. Nevertheless, while DOT believes it is worthy of further consideration, this exemption has not been included in the proposed regulations at this stage.

#### 6.4.2 Eligibility for marine licences

Consistent with the purpose of licensing in the Act (section 45(c)), *to ensure that people who are, or become, unsuited to be the master of a registered recreational vessel are not permitted to be the master of a registered recreational vessel*, the proposed regulations make the following persons ineligible:

- › a person who has been disqualified from obtaining a marine licence for the period of the disqualification (including when the disqualification was in another jurisdiction); and
- › a person who is the holder of a marine licence that has been suspended, during the period of that suspension (including when the disqualification was in another jurisdiction).

To not make such a regulation would undermine the efficacy of disciplinary action taken by the Safety Director in accordance with Part 4.6 of the new Act. This is because it would permit a person who was disqualified or had his or her licence suspended or cancelled to reapply for a new licence. The Safety Director's capacity to deny such an applicant a licence is subject to the making of this regulation.

#### 6.4.3 Endorsements

As previously discussed, there are impediments to implementing any new licence endorsements in time for the commencement of the new Act. In any case, DOT believes that further consultation is required on licensing options before finalising its recommendations to government. The proposed regulations focus on the merits (in the short-term) of continuing the requirement for licences to be endorsed if the licence holder wishes to be the master of a PWC. This Chapter of the RIS considers the benefits and costs of continuing this endorsement requirement (refer to section 6.5 that follows).


#### 6.4.4 Application requirements for licence or endorsement

The proposed regulations specifying application requirements provide greater elaboration and codification than the existing *Marine Regulations 2009*. For example, the proposed regulations make it clear that the Safety Director can require a test of prescribed type or training to be undergone, production of evidence of a prescribed type of qualification, or evidence of the applicant holding an equivalent licence or certificate in another State.

Fundamentally though, there is not proposed to be any substantive change from the status quo. The reason for this is that there is very little choice in practice regarding what must be provided, i.e. the person's personal particulars such as name, address etc need to be provided and the person either needs to sit and pass the test or provide evidence to suggest that no test is required.

#### 6.4.5 The extent to which the Safety Director has discretion

As indicated in section 6.3, it is envisaged by the Act that the Safety Director will exercise the authority to grant or refuse to grant licenses, endorsements, and variations to conditions "in accordance with the regulations". It is therefore not practicable to assume no regulations as the base case, and moreover, it is appropriate to assume the status quo as providing the most legitimate reference point for analysis.



The status quo regulations require that the Safety Director “must” refuse an application for a licence or endorsement if the applicant is ineligible. This is necessary to ensure one of the specified purposes of licensing is achieved (refer to section 45(c)). The alternative option, to provide discretion (i.e. use “may”, instead of “must”) provides the opportunity for the intentions of Parliament to be frustrated, for example, by allowing ineligible persons to be licensed. At minimum, the alternative to provide discretion necessitates considerations to be made and accordingly increases the costs of administration.

The proposed regulations pertaining to the right to refuse to renew a licence are limited to circumstances where the application requirements have not been satisfied. This provides the certainty that is necessary to largely automate the process of licence application and assessment. Without such certainty, more costly administrative arrangements would be necessary to substantiate that considerations have been taken into account before a discretion is exercised.

#### 6.4.6 Marine licence period

An option is to not specify an expiry period on marine licences, and accordingly, make them perpetual. However, the Act clearly envisages that there will be licence renewals for the following key reasons:

1. One of the specified purposes of licensing is to identify responsible persons for enforcement purposes. To enable this, a photo and a specimen signature are included as part of the licence document. Enforcement officers use this information to verify that the person representing themselves as the holder of the licence is in fact the holder of the licence.
2. A component of the licence fee is set to recover the costs of administering and enforcing marine safety regulation. If licences were not required to be renewed then there would be no convenient capacity to charge the fees and recover these costs.

If there were no licence renewals then these functions would still need to be performed. As argued in Technical Paper 6, the alternative arrangements which would be expected to be established approximate the costs and benefits of the status quo and so it is appropriate to assume the status quo as a proxy for the base case.

Under the status quo arrangements applicants for licences and holders of licence are given the option to have a licence issued or renewed for a period of either 1, 3 or 5 years. The majority choose to renew for 5 years (56%) and a large proportion choose to renew for 3 years (32%). However, a small proportion continue to choose to renew for a period of 1 year (12%).

Photos included in the licence document do not need to be updated every year or every 3 years to be effective in fulfilling their function so there is reason to consider whether the choice of 1 and 3 years should continue to be offered. A potential benefit of reducing the frequency of renewal is the administrative and compliance cost savings associated with reducing the number of transactions that take place. The potential quantum of these benefits is considered further in section 6.5.

It is reasonable to assume that some of the gains associated with reducing renewal transaction numbers would be lost due to an increase in the number of persons seeking to surrender registration and obtain a pro-rata refund in relation to fees paid. It is also reasonable to assume that, despite the expectation that compliance costs will be reduced, some licence holders will object to the elimination of choice. Depending on demands for financial resources, the value of a dollar today may be higher than the value of saving time and effort in the future. The analysis of costs and benefits which follows in section 6.5 generally takes this into account by adopting a 3.5% discount rate.

#### 6.4.7 Renewal process

The renewal process is based on the renewal process for motor vehicle licences which has evolved over time to take advantage of the potential for administrative and compliance cost savings. It is apparent that in order to avoid the possibility of identify fraud, licence renewal processes must necessarily involve a licence holder visiting a processing centre and evidencing their identity and personal particulars. It is not possible, for example, to automate the renewal process such has been possible for the registration of vessels (i.e. payment by response to notice of renewal)<sup>8</sup>.

<sup>8</sup> In practice the option is provided to licence holders to renew their licences by mail, but in order to avoid the possibility of identify fraud, the photo provided by mail for the updated licence needs to be sighted and signed by a member of the police force. The requirements for the photo are also very specific and are not easily satisfied by home based photo production systems. For these reasons, the option to renew a licence by post is one that is rarely taken - it has been the option chosen for only 4.2% of all licence renewals over the last 4 years.

However, certain aspects can be automated, such as the sending of renewal notices. This process aims to avoid inadvertent non-compliance with licensing requirements (because the licence holder is not aware that the licence is about to expire).

DOT considers that the status quo requirements are as efficient as they can be and has not been able to identify feasible alternatives worthy of consideration.

#### 6.4.8 Tests of health and competence

##### Scope of testing options

Section 56 of the Act gives the Safety Director the power to require licence holders and applicants for marine licences and licence endorsements to undergo a test or tests of health and competence in order to determine whether the person is fit to be the master of a recreational vessel.

The classes of tests which could potentially be required by the Safety Director are numerous; however, there is a limit on the type of "test of competence" the Safety Director can impose on applicants for marine licences or licence endorsements i.e. the type of test imposed needs to be of a prescribed type for that licence type or endorsement (refer to sections 53(2)(a)(i), 54(2)(a)(i) and 55(5)(a)(i) in the Act). In the proposed regulations, the prescribed type of test for a marine licence and for a PWC endorsement is a "test of knowledge". In effect, this prohibits the Safety Director from requiring skills based testing or any other type of test of competence to be undergone.

##### Class of person authorised to conduct tests

Section 56(3) states that tests the Safety Director requires be carried out by a person of a *class prescribed in relation to that class of test*. The proposed regulations must therefore give consideration to the type of tests that the Safety Director may impose and the class of person who should be permitted to conduct such a test.


In determining the class of person who should be permitted to conduct different tests there are two key questions:

- What type of test would the Safety Director foreseeably need to impose from time to time to support achievement of the specified purposes of licensing?
- What class of person could reasonably be expected to have the knowledge and expertise that is necessary to conduct the types of tests that are foreseeable?

Clearly costs of conducting tests can be reduced if the class of person authorised to conduct a test of the specified type are accessible, and the services can be obtained readily from a competitive market. However, the class of person needs to have relevant knowledge and expertise so that they are effective in conducting the test and providing advice to the Safety Director on the outcomes of the test. Specifically, there needs to be confidence that the prescribed class of person authorised to conduct the test can be relied upon to provide advice on whether the person is fit to be the master of a registered recreational vessel or a regulated hire and drive vessel.

It is foreseeable that from time to time the Safety Director will become aware of, or will be notified that, a licence holder has a condition or a disability which potentially makes the person unfit to safely operate a recreational vessel. In such circumstances it is necessary to enable the Safety Director to require a medical test to be undergone or to require an evaluation of a person's physical and cognitive abilities. The proposed regulations specify that a registered medical practitioner can conduct a medical test and provide advice to the Safety Director. Similarly, when it is necessary to undertake an evaluation of physical and cognitive abilities, an occupational therapist can conduct the evaluation and provide a recommendation to the Safety Director.

Registered medical practitioners are accessible, have the ability to conduct a variety of tests and the capacity to advise on the outcomes of these tests. By contrast, occupational therapists are more specialised and may not be readily accessible, for example, to persons who live in regional parts of Victoria. It is for this reason that the proposed regulations provide scope for the Safety Director to specifically authorise a person in writing to conduct an evaluation of a person's physical and cognitive abilities. The onus would be on the Safety Director to determine whether the person has the necessary knowledge and expertise to conduct the evaluation and provide reliable advice.



Eyesight tests are a standard part of the licensing process and in order to minimise costs it is necessary to authorise a broad group of persons to be able to conduct such tests. The procedure for conducting such tests has been standardised over a long period and can be effectively conducted by trained persons without formal medical qualification. In practice, a large number of employees of VicRoads who are involved in administering the licensing system on behalf of the Safety Director have been trained to conduct eyesight testing and routinely conduct such tests as part of administering the motor vehicle licensing system. To implement the same system of authorisation under the *Marine Safety Act 2010* would provide a cost effective solution to the need to ensure that persons acting as masters of recreational vessels have the eyesight needed to safely fulfil this role.

#### Testing of competence

When considering the administrative and compliance costs associated with licensing the key issue is not health tests, but instead, is the cost effective testing of competence. As indicated in the introduction to this section, the prescribed type of test is a "test of knowledge". The content of the knowledge test, and by implication, the time it takes to study for and take the test, are not matters to be specified in the proposed regulations. The new Act provides discretion to the Safety Director to make a determination on this (as does the *Marine Act 1988*). What is to be determined in the proposed regulations is the extent to which the Safety Director should be enabled to delegate the testing of applicants, or accept the test results of tests conducted by persons other than the Safety Director and his or her delegates.

In order to provide a common threshold and minimise the costs of licensing there is a need to standardise the test and enable them to be conducted at a time and at a location that is convenient to the applicant. The Safety Director needs to make available a large number of test locations and/or rely upon a network of persons who are authorised under the regulations to conduct tests. In practice, both these scenarios exist under current settings. As a consequence there is a market<sup>9</sup> for providing such testing services and this acts to ensure that the costs involved are minimised. Indeed 70% of applicants prefer to undertake testing as part of a training course through accredited training providers rather than undertaking the multiple choice knowledge test at a VicRoads processing facility.

The assessment of DOT is that the status quo arrangements provide the wide variety of locations and operating hours which are necessary to minimise the costs of compliance. The more transparent accreditation arrangements under the proposed regulations will further enhance competition in the market for conducting tests of knowledge.

There are no further options identified as being feasible and worthy of further consideration. The proposed regulations provide for a continuation of the conduct of tests of knowledge by both the delegates of the Safety Director and accredited training providers who are approved by the Safety Director. The costs and benefits of making the proposed regulations are considered in sections 6.5.

#### 6.4.9 Prescribed conditions of marine licences

The *Marine Safety Act 2010* provides the power to:

- prescribe standard conditions of marine licences that will be applied to all licence holders; or
- prescribe conditions that are applicable to the operation of a specified class of licence holder.

The status quo arrangements suggest that there is a public safety argument in support of imposing conditions on the operation of vessels by restricted licence holders, so there is a need to consider whether such conditions should be continued or whether alternative controls should be utilised in future. Consultation has also revealed that there are some uncertainties about what constitutes "supervision" and concerns about juveniles (i.e. persons under 18 years of age) being permitted to supervise the operations of others.

<sup>9</sup> There are barriers to entry into this market because the Safety Director is required to approve of courses and persons conducting tests. The Safety Director requires such training providers to demonstrate their competence and capacity to conduct training and testing before approving their courses and their capacity to conduct testing. These requirements will become more transparent under the proposed accreditation regime (refer to Chapter 15).



### What constitutes “supervision” and who should be permitted to do it?

As indicated in the introduction to this Chapter the new Act requires *masters* of vessels to be licensed, rather than *operators* (of which there may be multiple). The significance of this change is that it permits unlicensed persons to operate a vessel when under the direct supervision of a licensed master.

A master (as defined in the new Act) is the person who has command or who is in charge of the vessel. The implication is that the master is actually present on the vessel. DOT is aware of instances where supervision has purported to have been provided from the beach or from the shore of the lake or river. The proposed regulations make it clear that to be the master of a vessel, and have the capacity to supervise the operation of the vessel by others, the master must actually be present on the vessel. Further, the master of the vessel must be in a position to take immediate control of the operation of the vessel should there be reason to.

The function of the proposed regulation is to avoid doubt. Accordingly, it is not the type of regulation for which there are alternative options because its purpose is to make the intent of the Act clear. A variable examined in relation to the proposed regulation is the extent to which there should be any limits on the extent to which licensed masters should be permitted to supervise the operation of the master’s vessel by others.

Options considered included:

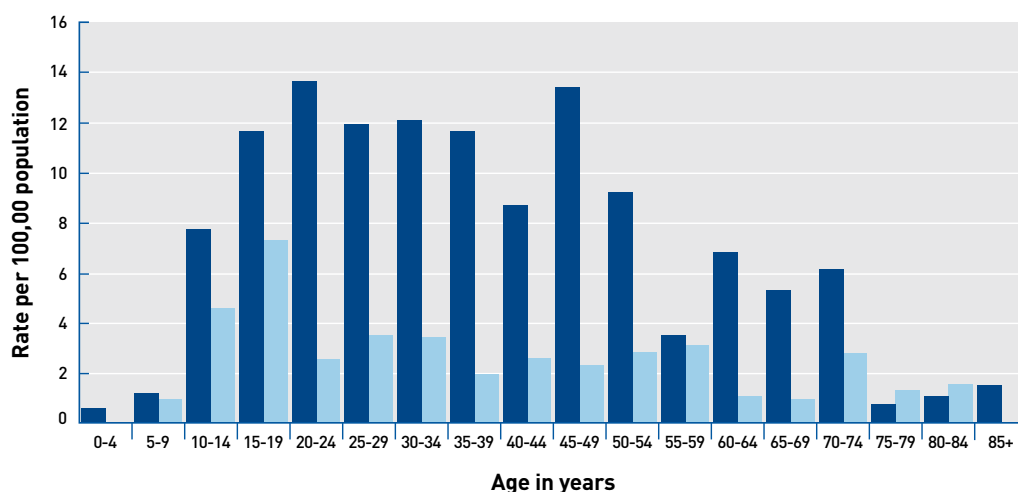
- › requiring the licensed master to be at least 21 before being permitted to supervise the operations of his or her vessel by others;
- › requiring the licensed master to have held an unrestricted licence for a minimum of 3 years; and
- › requiring the licensed master to be a legal adult (i.e. over 18 years of age) before he or she is permitted to supervise others.

Option 1 (over 21) was proposed on the basis that 21 is the minimum age before a person can gain a unrestricted road licence, and hence, is able to supervise learner drivers. The fact that in the road context a person cannot obtain a full licence until they are 21 reflects a solid body of research regarding the vulnerability of young drivers and their disproportionate representation in death and injury statistics over many years.

The dynamics are different in the recreational boating context. Young persons (including licence holders) are not over-represented in death and injuries sustained while engaging in recreational boating (see Graph 6.1 below). The highest rates are amongst 20-24 year olds and 45-49 year olds.

The qualification on this observation is that analysis should also consider the frequency of activity in each age category. It is possible, for example, that young people are over-represented in death and injuries sustained if they actually engaged in recreational boating activities less frequently than other age categories. It has not been possible to analyse this point because of lack of data, specifically regarding frequency of activity by persons by age.

Graph 6.1 – Rate of recreational boating hospital admissions per 100,000 population by age and gender, Victoria July 1, 2008 to June 30, 2010



Source: Victorian Admitted Episodes Dataset (VAED), July 1, 2008 to June 30, 2010

Under the current requirements it is possible (and has been for a number of years) for 16 year old unrestricted licence holders to supervise the operations of 12 year old restricted licence holders operating up to a speed of 20 knots<sup>10</sup>. Despite this there is no apparent safety problem. Therefore any option that would impose limitations is hard to justify.

Option 2 (minimum of 3 years experience) suffers from the same problem as Option 1 in that there is the absence of a safety problem for which the proposal may serve as a solution. Furthermore, there are practical problems regarding the enforcement of such a requirement (at least in the short-term prior to system changes) because the information technology systems supporting the enforcement of marine safety requirements on the water do not provide data on how long a person has held his or her licence. Clearly, this issue could be addressed in time (and at a cost) but adopting this option (presuming it could be justified) is not a feasible option in the short term.

Option 3 has been incorporated in the proposed regulations. The intent of this option is to make sure that any misconduct or negligence on the part of the person acting as the master can be sanctioned through the normal criminal justice system rather than through the children's court. In effect, the option seeks to improve consistency between the licensing requirements and the general legal system in Victoria (and Australia). The general legal system identifies 18 as the age at which a person can be considered an adult and held to full account for his or her actions. If option 1 is not adopted, the Act will effectively require young masters wishing to supervise to assume responsibilities for the actions of others when they are not in fact fully responsible (from a legal perspective) for their own actions.

DOT believes that allowing only adult licence holders to supervise others is an appropriate position to adopt but is seeking stakeholder comment to either confirm or deny the merits of the proposed regulation. As indicated in the summary of outcomes from consultation undertaken in 2009 (which was published on the DOT website in early 2010):

*This issue prompted a wide range of responses which were not easy to reconcile.*

*On the one hand, there is concern over:*

- the adequacy of supervision under the current regime; and*
- young operators' access to high-powered vessels.*

*On the other, there is concern that the current regime makes it difficult for young operators to gain experience.*

Option 3 and the change incorporated in the Act, i.e. the capacity for licensed masters to supervise unlicensed persons when they are operating a vessel, were the preferred options following consultation in 2009. These options were preferred on the presumption that there would be a continuation of conditions of the type already specified in the *Marine Regulations 2009* (refer to following section). The other options considered are discussed in pages 135-137 of the Discussion paper: *Improving Marine Safety in Victoria (July 2009)*.

#### **Conditions on the operation of vessels by restricted licence holders**

Under the *Marine Act 1988* and the *Marine Regulations 2009*, a person must be at least 12 years of age to hold a recreational boat operator licence. Operators aged over 12 years and under 16 years must hold a restricted operator's licence and can only operate:

- at speeds of less than 10 knots, and
- at speeds of more than 10 knots and less than 20 knots if:
  - accompanied by a person over the age of 16 years who is licensed appropriately for the vessel being operated, and
  - operating between sunrise and sunset.

These operators must not operate a vessel that is towing a person, another vessel or an object.

As indicated in the preceding section the consultation process in 2009 presumed there would be, at least, a continuation of the current conditions attached to restricted licences. Indeed, the imposition of such conditions is implied by the very advent and continuation of the concept, i.e. there would be no point in having a "restricted" licence if there were no conditions that impose limitations on what the holder of such a licence can do.

<sup>10</sup> In practice, due to the difficulty in differentiating between 20 knots and 30 knots it would be expected that 16 year old licence holders supervising restricted licence holders would be travelling at greater speeds than what is technically permitted.

Most of the consultation in 2009 focused on options to increase the limitations and constraints placed on restricted licence holders. For example, there was consideration of the option to limit the type of vessels restricted licence holders could operate when unsupervised, or alternatively, make restricted licence holders subject to more onerous testing and training requirements than those which currently apply for general marine licences. However, none of these options was strongly supported.

The number of restricted licence holders in Victoria is approximately 4,500.

The proposed regulations assume a continuation of most of the conditions that presently exist with the exception of the limitations on what can be done when supervised. This amounts to a relaxation of some the limitations imposed under the status quo but there is good safety reason for making such changes. Limitations on the maximum speed and on towing persons or objects when supervised deny the holder of restricted licences the opportunity to learn how to undertake such operations safely under controlled conditions. This is counter to maximising the scope for learning to take place while support is available to minimise the risks associated with learning by doing.

Other conditions could be imposed which limit:

- the type of vessel that unsupervised restricted licence holders would be permitted to operate (e.g. vessels not capable of going faster than 10 knots); or
- the environs in which unsupervised restricted licence holders are permitted to operate in.

Such options were considered in 2009 but as was the case then, it remains difficult to justify the imposition of additional conditions without any form of evidence to suggest there is a safety problem.

#### 6.4.10 Marine licence document

As is the case with the *Marine Regulations 2009*, a division of the proposed regulations specifies the form and content of marine licences, including how conditions and endorsements should be indicated on the licence document. There is also a provision which explains the status of the licence receipt in evidencing that the person who holds the receipt is a valid licence holder.

The function of these proposed regulations is to codify the implicit information management obligations of the Safety Director. Arguably, such regulations are not needed at all but as indicated, there are benefits in providing certainty and transparency. The costs associated with delivering such certainty and transparency are not significant and so it is reasonable to assert that the proposed regulations provide net benefits and are therefore justified.

#### 6.4.11 Change of address

One of the specified purposes of registration is to identify the owner or other person(s) responsible for a vessel. This information is needed for compliance monitoring and enforcement purposes. This information needs to be kept up to date. Accordingly, there is an imperative to oblige person(s) registered as being responsible for vessels to notify of changes in their residential and/or postal addresses.

The base case of no regulations may be a viable option because it is true that licence holders have an incentive to ensure that their address details are accurate so that renewal forms are sent to them. However, this may mean that licensing records are out of date for up to 5 years, potentially frustrating and adding costs to enforcement actions because the whereabouts of the licensed master is not known for the purpose of issuing summons. In practice, inaccurate or out of date residential address details can result in costs being incurred. These are the costs associated with trying to identify the new residential address of the licence holder – which is a task usually undertaken by the Sheriff's office, but foreseeably could be undertaken by private investigators should this be necessary.

In practice, another argument for no regulations is that motor vehicle licence and boat licence records are linked, so updating address details for motor vehicle licences (in accordance with the equivalent road safety regulation) fulfils the function of this proposed regulation. However, this is a product of the service delivery arrangements agreed between VicRoads and the Safety Director which potentially are subject to change over the life of the proposed regulations. On balance, DOT's position is that there should continue to be a specific requirement to oblige persons responsible for registered vessels to notify of changes in address details. This is necessary to support the cost effective administration of the licensing system and the effectiveness and efficiency of compliance monitoring and enforcement activity. There is not considered to be a viable alternative.

### 6.4.12 Notification of illness or injury

Injury sustained or illness suffered by a person may impede or hamper a person from operating a recreational vessel safely. Accordingly, a change to the capacities of persons is of interest to the Safety Director. The proposed regulation places on onus on persons that have suffered injury or illness which may impair their ability to operate a recreational vessel safely to notify the Safety Director of this change.

The effect of the proposed regulation is to create an incentive to notify. Such incentive is considered to be necessary given the understandable temptation for those that have suffered illness or injury to wish to continue to engage in water based recreational activities that they find rewarding. However, to do so with reduced capabilities may unduly expose risks to others and this is why there is a public interest in being aware of such changes and having a capacity to respond.

## 6.5 Estimated benefits and costs of the proposed regulations

### 6.5.1 Scope of parties required to be licensed

Relative to the base case of no regulations there are no identified costs associated with granting exemptions from the requirement to be licensed to the holders of certificates of competency issued by the Safety Director. This is because:

- › there are no inherent safety risks: certificate holders have already evidenced at least the pre-requisite level of knowledge and skill that is required to obtain a marine licence; and
- › the Safety Director already has the capacity to identify, locate and/or contact the certificate holder for compliance monitoring and enforcement purposes.

The loss of licensing revenue is not regarded as a cost because the actual resource costs involved are avoided by not having to undertake the licensing transaction and the tax component of the fee is technically a transfer and can be disregarded for the purpose of the analysis.

The benefits of granting exemptions to certificate of competency holders is limited to the 3,049 (as at January 2011) certificate holders (refer to Chapter 8 for breakdown) who have had their certificates issued or renewed by the Safety Director no earlier than 10 years prior to the commencement day. However, in practice, the proportion of certificate holders who have an interest in engaging in recreational boating have already acquired a marine licence. The estimated savings associated with the proposed exemption (in present value terms over the 10 year life of the proposed regulations) are approximately \$450,000<sup>11</sup> and so while the savings are real they are not significant. Nevertheless, the case for making the proposed regulation is clearly justified.

### 6.5.2 Eligibility for marine licences

The costs that are suffered due to the proposed regulations equate with the reduction in utility of those persons who are prohibited from engaging in recreational boating activities due to their ineligibility to gain a licence. However, given that the proposed regulations only make disqualified persons or persons with suspended or cancelled licences ineligible, at least part of the benefit of the proposed regulations is associated with removing these individuals from State waters where, through their conduct, they have been proven to be a risk to others.

The more significant benefit is that the proposed regulation explicitly eliminates a potential loophole which could have been used to undermine the efficacy of disciplinary action (suspensions or cancellations) or court awarded sanctions (disqualification). While such effects are difficult to quantify, the implications associated with allowing the loophole<sup>12</sup> to continue are obvious. There is a clear public interest in ensuring that sanctions are effectively implemented – particularly in response to repeat offending and severe breaches. The proposed regulation is a necessary part of the system that gives these sanctions their intended effect.

Based on the qualitative arguments presented, there is a clear case in favour of proceeding with the proposed regulation.

11 Assumes that all new certificate of competency holders have an interest in recreational boating and would have been forced to apply for a marine licence in the absence of the proposed exemption. Equally it assumes that all existing certificate of competency holders have obtained recreational licences and that the exemption provides them with the opportunity to avoid future renewal requirements.

12 i.e. nothing stopping person with disqualified, suspended or cancelled licence to apply and obtain a licence if able to pass the test

### 6.5.3 Endorsements

The proposal is to continue the requirement for licences to be endorsed if the licence holder wishes to use a PWC. The details of the assessment are documented in Technical Paper 6.

The estimated yearly cost of PWC endorsements are approximately \$580k a year. Over the 10 year life of the proposed regulations the total costs would be in the order of \$4.3 million dollars in present value terms (assuming a discount rate of 3.5%).

There are a number of data limitations associated with estimating the benefits. Firstly, it is not possible to be certain about exactly how much knowledge is transferred and retained by licence holders as an outcome of the licensing process. Secondly, there is an uncertain relationship between improved knowledge and the reduction in incidents causing death, injury and property damage.

A study evaluating current training and testing was undertaken by MUARC on behalf of Marine Safety Victoria in 2008. The study compared the results of licence applicants sitting the theory test before and after studying the *Victorian Recreational Boating Safety Handbook*. It found that there was only a 5% knowledge gain between pre and post study of the handbook. The results of those sitting the test after the knowledge based training course demonstrated a knowledge gain of 19%. Assuming these results all valid, the average knowledge gain based on the current split between those that undertake courses and those that simply set the test is 15%.

However, it remains the case that there is no indicator of the relationship between improved knowledge and reduction in incidents. Accordingly, the only option is to assess the number of incidents (resulting in some form of injury) that would need to be avoided in order for the benefits (death, injury and property damage avoided) to outweigh the estimated costs of \$580k per annum.

Based on the number of incidents involving PWCs on average and the severity of those incidents (which is disproportionately high – refer to data included in Technical Paper 6), it is possible to determine that the weighted average cost of a PWC injury incident (in terms of deaths, injuries and property damage) is approximately \$144,300. Therefore, in order for the benefits of continuing the PWC requirement to outweigh the estimated costs (\$580,000 p.a.) between 4 and 5 injury incidents per annum would need to be avoided. Put differently, if it is reasonable to expect a 3.3% to 4.1% reduction in injury incidents due to a 15% improvement in the knowledge of recreational boaters<sup>13</sup>, then the continuation of the PWC endorsement requirement is justified. This is certainly considered feasible, however, its likelihood is largely a matter of judgement and therefore should be subject to stakeholder scrutiny.

*DOT believes that it is reasonable to expect that the 15% improvement in knowledge achieved through the imposition of the PWC endorsement requirement results in at least a 3.4% reduction in PWC related incidents each year on average.*

*Question: Do you agree? If not, do you believe the PWC endorsement requirement should be abolished? Or do you think that there are other reasons for continuing this requirement?*

It should be noted that the Options Paper being released for consultation at the same time as this RIS estimates the effectiveness of different licensing options. As indicated in Table 6.2 (below), it is expected that there will be a 9% reduction in PWC incidents associated with an enhanced knowledge test, which is then shown to translate into \$1.90 of benefit for each \$1 of cost. In addition, it is expected that adding a practical test to the PWC endorsement requirement will result in a 25% reduction in incidents, which is then shown to translate into \$1.50 of benefit for each \$1 of cost. The estimates and the analysis which they are based on have been released so that they can be subject to public scrutiny and debate before DOT makes final recommendations to Government about what (if any) additional licensing requirements should be established.

<sup>13</sup> Because the requirement already exists and has an influence on outcomes what is really being queried is whether it is reasonable to believe that outcomes would have been 3 to 3.4% worse if not for the imposition of the PWC endorsement requirement in 2002.

**Table 6.2 – Percentage reduction in incidents expected to result with imposition of new testing and/or training requirements**

Gross	Enhanced information	Knowledge test enhancement	Logbook	Practical test	Training	Training and test
General boating licence	6.41%	9.00%	25.30%	22.62%	23.73%	38.85%
PWC endorsement	4.01%	9.14%		24.91%		
Towed water sports endorsement	4.01%	8.37%		27.14%		

#### 6.5.4 Application requirements for licence or endorsement

As argued in section 6.3, it is not practicable to have a licensing system without regulations that specify certain basic procedural requirements, such as how a person may apply for a licence, how a licence holder may renew his or her licence, etc. For these matters, it is appropriate to adopt the status quo arrangements under the *Marine Act 1988* and the *Marine Regulations 2009* as the base case. This being so, the proposed regulations do not propose any change of substance relative to the status quo, and accordingly, there are no additional costs and benefits to assess.

#### 6.5.5 The extent to which the Safety Director has discretion

The instances where the proposed regulations afford discretions to the Safety Director are consistent with the status quo. Because of the general need to provide for administrative efficiency the alternative option of using “may” instead of “must” in a number of instances is considered an inferior option. Because the proposed regulations are consistent with the status quo, and the status quo (for the reasons articulated) should be regarded as the base case, there are no additional benefits and costs to assess.

#### 6.5.6 Marine licence period

Under the status quo regulations licence holders have the choice of renewing for 1, 3 or 5 years. In section 6.4.6 it was argued that eliminating choice and setting the licence period to be 5 years would avoid unnecessarily updating photos too frequently and potentially would save a significant administrative and compliance costs over the life of the proposed regulations.

The benefits of adopting a 5 year licence period are related to the number of transactions eliminated. Each transaction involves:

- compliance costs in the form of the transport and time costs associated with travelling to and from a VicRoads processing facility;
- the time costs of the applicant associated with fulfilling the transaction; and
- the direct administrative time and effort associated with facilitating and processing the licence renewal transaction (including taking a new photo).

Technical Paper 6 explains in detail how these administrative and compliance costs have been estimated.

There are approximately 300,000 licence holders at present and while there have been approximately 35,000 new licence applicants per year in recent years, approximately 30,000 other licence holders allow their licences to lapse or surrender their licence and seek a pro-rata refund of fees. In practice, the vast majority allow their licences to lapse rather than surrendering their licence and seeking a refund. Only approximately 100 per month (1200 a year) surrender their licence. Even if this were to double as a result of eliminating the choice to renew licences for periods less 5 years, the costs associated with surrendering a licence (both administrative and applicant costs) would not be significant in aggregate terms (estimated at approximately \$120k per annum).

In total it is estimated that over the 10 year life of the proposed regulations the total amount of transactions will reduce from approximately 1,125,000 licence renewal transactions to approximately 675,000 transactions. As a result, the present value of estimated costs will reduce significantly. This is shown in Table 6.3 (below). The estimated saving in present value terms is in the order of \$15.4 million.

In considering this result the obvious question is whether more savings can be achieved by lengthening the licence period even further. If it were possible to hold everything constant the answer would be yes. However, a critical issue is the extent to which renewal of a licence with 10 years of fees attached would be affordable. If not, even if only for a proportion of licensed masters then the implication could be an increase in the level of non-compliance with licensing requirements.

Available evidence suggests that there is already a sizeable problem in relation to the number of person involved in recreational boating who do not register their vessels and are not licensed. 8.4% of infringement notices are issued for operating an unregistered vessel and 7.9% of infringement notices are issued for operating vessels while unlicensed. A decline in the perceived affordability of licence fees (because the impact on household budgets needs to be absorbed all at once) may have significant negative impacts and this is why stakeholder consultation on this issue is important.

What can be observed at present is that for 56% of licence holders the fee applicable to a 5 year renewal is affordable. However, this may not be the case for the remaining 44%.

Importantly, the outcome of consultation will provide insight into the extent to which the extension of the licence period to (for example, 10 years) would be a possibility without risking a significant increase in non-compliance. However, in order to validly consult on this matter it needs to be noted that while a further significant reduction in transaction numbers could be achieved, fees would have to increase. With this in mind, it is expected that affordability could become an issue. Notwithstanding this, what the analysis has demonstrated is that there are substantial savings to be achieved by increasing the licence period and reducing the number of licence renewal transactions which need to be undertaken. Importantly, there is no reason to believe that a change to adopt a licence period of 5 years would result in additional costs, or reductions in efficacy, that would provide a counter argument against proceeding with this change.



Table 6.3 – Estimated impact on transactions and costs associated with setting licence period at 5 years

Total licence renewals (Status Quo)						Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10			
	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21			
																1,125,788	total transactions	
<b>1 year</b>	35,380	35,535	35,690	35,845	36,000	36,600	37,200	37,800	38,400	39,000	39,600	40,200	40,800	41,400	42,000	393,000	total transactions annual	
<b>3 year</b>	30,764	31,176	31,588	32,000	32,412	33,188	33,600	34,012	34,788	35,200	35,612	36,388	36,800	37,212	37,988	354,788	total transaction 3 year	
<b>5 year</b>	32,156	32,878	33,600	34,322	35,044	34,956	35,678	36,400	37,122	37,844	37,756	38,478	39,200	39,922	40,644	378,000	total transactions 5 year	
<b>31,434</b>	722					<b>Costs per annum</b>	4,938,680	5,020,438	5,102,196	5,201,117	5,282,875	5,326,441	5,425,362	5,507,120	5,588,878	5,687,799	\$53,080,904.20	Total costs
						<b>PV of costs</b>	4,771,671	4,686,632	4,601,888	4,532,473	4,448,039	4,333,063	4,264,285	4,182,171	4,100,733	4,032,188	\$43,953,142.78	PV Total Costs

After proposed regulations (i.e choice of 5 year licences only)						Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10			
						2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21			
						<b>Transactions</b>	104,744	69,878	71,012	39,322	40,044	109,744	74,878	76,012	44,322	45,044	675,000	total transactions
						<b>Costs per annum</b>	4,938,680	3,554,694	3,612,380	2,000,310	2,037,038	5,582,677	3,809,044	3,866,730	2,254,660	2,291,388	\$33,947,602.32	Total costs
						<b>PV of costs</b>	4771671	3318345	3258160	1743155	1715132	4541512	2993874	2936440	1654314	1624408	\$28,557,009.98	PV Total Costs
																\$15,396,132.81	Estimated Savings in PV terms	
																450,788	Reduction in transactions	



*Question: The proposal is that licence renewals will be for a fixed period of 5 years at a cost of \$150 (the current fee), less the administrative cost savings that are proposed to be passed back to licence holders (approximately \$10). Do you support this change? Please briefly explain why or why not.*

*An alternative is to extend the fixed licence period to 10 years. The fee to be paid would then be around \$280.*

*Question: Do you support this change? Please briefly explain why or why not.*

### 6.5.7 Renewal process

As indicated in section 6.4.7, DOT considers that the status quo requirements are already as efficient as they can be and has not been able to identify feasible alternatives that are worthy of further consideration and analysis. DOT believes that the proposed regulations are justified on the basis that they specify the minimum requirements necessary to support the periodic renewal of marine licences for the purpose of collecting fees and ensuring that photos are kept up to date.

### 6.5.8 Tests of health and competence

The benefit of prescribing classes of persons as being authorised to conduct specified types of tests should be clear. If no classes of person are prescribed then no tests can be conducted and the licensing system will cease to function. These regulations have this importance because of the way section 56 of the Marine Safety Act is drafted. Accordingly, the costs that could be attributed to this proposed regulation (because it is a critical component of licensing) are the costs of all testing conducted. However, this is not appropriate. Consistent with other assumptions made in this RIS about the base case, Parliament has already determined that licensing will continue and that by implication, testing will be conducted. What is within the scope of this RIS, and specifically in relation to this proposed regulation, is the type of tests to be conducted and the efficiency and effectiveness of testing.

The primary risk associated with the proposed regulation is that insufficient test types will be prescribed. The secondary risk is that the class of person prescribed as being authorised under a specified type of test are inaccessible or prohibitively expensive to employ.

Experience over the last 10 years of marine licences has clearly indicated that there is a need to enable broad categories of persons to conduct eyesight tests and tests of knowledge which are currently standard components of the licensing process. The proposed regulations provide for this. Experience has also indicated that from time to time various types of medical and cognitive ability tests are required and that the cost effective conduct of these tests is sometimes complicated by lack of access to specialists. To address such circumstances the proposed regulations prescriptively specify the type of medical specialist that may be needed (and who are authorised) to conduct tests as well as providing to the Safety Director a capacity to specifically authorise others to undertake tests in circumstances where access to the prescribed type of person is difficult or unwarranted in the circumstances.

In summary, relative to the proposed regulations specific function, DOT believes that choices about the specific content of the proposed regulations can be justified. However, the specific attribution of costs and benefits to the proposed regulation is not possible because it is a critical component of the licensing system and cannot be separately analysed.

### Prescribed conditions of marine licences

The function of the proposed regulation is largely about the avoidance of doubt regarding what constitutes effective supervision. Such an "avoidance of doubt" provision has no costs that can be attributed to it because it is not applying any new obligation or restriction - it merely makes the implicit requirements more transparent. The benefit is that voluntary compliance will increase and that compliance monitoring and enforcement will be more effective because matters that may have previously been arguable or uncertain will be made certain and unarguable by the proposed regulation.

The impact of the proposed regulation is therefore limited to marginally reducing the benefits associated with the change introduced by the new Act, i.e. to permit unlicensed operation under the supervision of a licensed master.

The reduction in benefits that otherwise would have been provided by the Marine Safety Act is a function of the number of licence holders between the ages of 16 and 18. While acknowledging that this number is likely to be changing every day, Table 6.4 indicates the number of licensed holders in this age category as at 21 January 2011.

**Table 6.4 – Licence holder between the ages of 16 and 18**

License Type	Number of Persons
General PWC Licence	6,618
General Recreational Licence	2,797
<b>Sum:</b>	<b>9,415</b>

As can be seen, approximately 3% of the 300,000 persons who currently hold licences are in this age category. Accordingly, it can be concluded that the imposition of this restriction will not significantly reduce the benefits associated with the capacity for licensed masters to supervise the operations of others.

The benefit of the proposed regulation is that it ensures that those that supervise the operations of others are legal adults that are fully accountable for their action under the criminal justice system. If such persons are not fully responsible for their own actions then they cannot be held responsible for the actions of others purportedly under their supervision.

## 6.6 Conclusions

Many of the proposed regulations form such a critical role in giving effect to the licensing system that the option of having no regulations is clearly inferior to the option of having some. For example, due to the construction of relevant provisions in the Act it is not possible to give effect to the licensing scheme without having regulations that specify the application process, testing of applicants and discretionary powers to grant or refuse to grant licences. Accordingly, in a number of cases where the making of regulations is, in effect, non-discretionary,<sup>14</sup> it has been appropriate to assume the status quo regulations as the starting point for the analysis of options.

In the vast majority of cases, the proposed regulations dealing with such matters re-enact the status quo on the grounds that there is either no feasible alternative, or, that feasible alternatives identified have been assessed as being inferior. This is true for:

- Application requirements for licence or endorsement (refer to sections 6.4.4);
- The extent to which the Safety Director has discretion to grant or refuse (refer to section 6.4.5);
- Renewal process (refer to sections 6.4.7); and
- Tests of health and competence (refer to sections 6.4.8).

For the other aspects of the proposed regulations, consideration has been given to alternative options and the benefits and costs of establishing (or continuing) regulations in relation to these discretionary areas have been assessed and quantified where possible.

### *Licence period*

At present, licence holders are given the choice to renew for either 1, 3 or 5 years. The analysis has demonstrated that over the 10 year life of the proposed regulations there are potentially significant savings in administrative and compliance costs (in the order of \$15m in present value terms) which can be obtained by eliminating choice and setting the licence period to be 5 years.

Importantly, the analysis suggests that additional savings could also be made by extending the licence period further (e.g. to 10 years). However, the issue that becomes apparent is the potential affordability of the periodic payment such changes would necessitate and the impact this could have on non-compliance. This risk of increased non-compliance is also applicable to the option of setting the licence period to be 5 years but at least in this case it is already evident that the fee of \$150 for a 5 year licence renewal is affordable to 56% of the population of licence holders.

<sup>14</sup> Each is identified and explained in the body of the Chapter.

The proposed regulations set the licence period at 5 years. Consultation is expected to reveal the extent to which the elimination of choice is a cause of concern to the 44% of licence holders who would be forced to change their renewal practices if the proposed regulations are made.

#### *Exemptions*

Minor administrative and compliance cost savings (in the order of \$450,000) can be achieved by providing an exemption from licensing to the holders of certificates of competency which have been issued or renewed by the Safety Director no more than 10 years prior to the commencement day. This exemption does not apply to certificates that are subject to conditions relating to the person's health or fitness. There are no identifiable costs associated with granting such an exemption. (refer to sections 6.4.1 and 6.5.1)

#### *Eligibility*

The proposed regulations which make disqualified persons and persons who have had their licences suspended or cancelled ineligible to apply for a marine licence would be a continuation of the status quo. The continuation of these status quo regulations is justified to ensure that there is no "loophole" that could be used to undermine the efficacy of disciplinary action (refer to sections 6.4.2 and 6.5.2).

#### *Endorsement requirement to operate a PWC*

The estimated costs associated with continuing the licence endorsement to operate a PWC are approximately \$580,000 p.a. While the effectiveness of knowledge transfer is low (approximately 15%), the reduction in injuries which would need to be attributed to this requirement (in order for it to break-even) is only in the order of 3.3% to 4.1% of the residual amount of injury incidents currently occurring on average. DOT believes it is reasonable to expect that the PWC endorsement would at least be this effective, i.e. if the PWC endorsement requirement does not continue it is likely that at least 4 or 5 more additional PWC incidents resulting in injury will occur each year on average. However, stakeholders may have different judgements about the likelihood of this break-even condition being satisfied.

#### *Prescribed conditions*

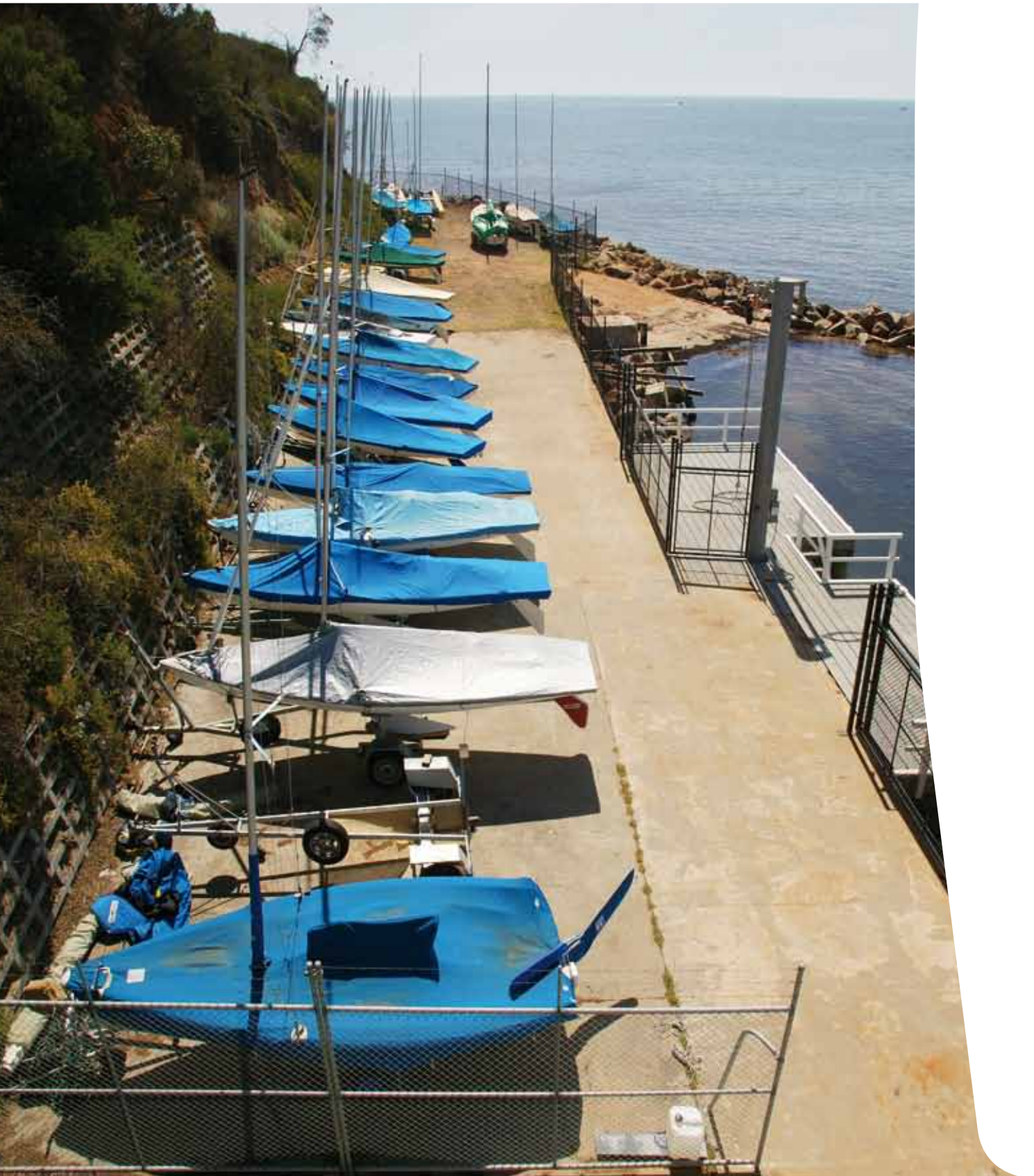
Supervision (by licensed masters) of the operation of vessels by unlicensed person(s) requires the master to be on the vessel and in a position to take immediate control of the vessel at all times. The purpose of this regulation is merely to avoid any doubt that this is required. The limitation of the right to supervise to masters who are 18 or older is justified on the basis that it is not appropriate to make a person responsible for the actions of others if the criminal justice system does not recognise such a person as being fully responsible for their own actions.

The continuation of conditions which give meaning to the concept of the "restricted" licence are also considered justified on the basis that such restriction are necessary to protect this vulnerable user group from risk exposure and because of strong stakeholder support for its continuation (which will be able to be verified, or not, as part of consultation on the proposed regulations). Due to information limitations, it has not been possible to assess the benefits and costs associated with this prescribed condition.

#### *Notification of changes in address and capacity/condition*

The retention of the requirement to notify changes in address is justified. One of the specified purposes of licensing is to be able to identify and locate persons for compliance monitoring and enforcement purposes. Accordingly, there are clear efficacy benefits associated with having the requirement to notify of changes in address. There are also little or no costs involved because under current administrative arrangements there are no real increment costs associated with complying with the "change of address" requirement – it happens automatically as part of complying with the equivalent road licence requirement.

There is also a strong public interest in maintaining the requirement for persons who have suffered illness or disablement which may impair their capacities to notify the Safety Director so that there can be an assessment of the extent to which such persons remain fit to act as the master of a recreational vessel.



## 7. Commercial certification

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This Chapter considers potential regulations covering requirements for certificates of safe construction and certificates of safe operation for commercial vessels in Victoria which are designed to minimise risks and incidents.

The proposed regulations largely reflect national standards (*National Standards for Commercial Vessels*) which have already been developed and agreed in a national harmonisation process led by the National Marine Safety Committee (NMSC). These were approved by the Australian Transport Council in accordance with the terms and conditions of the Intergovernmental Agreement signed on 7 November 1997 by the Prime Minister, State Premiers and the Chief Minister of the Northern Territory.

Due to this and the fact that each aspect of the national standards has already been the subject of a recent separate RIS it is not considered necessary or appropriate to consider alternatives to the vast majority of the proposed regulations. However, there are some regulations which are discretionary in nature and hence need to be explained and justified.

In addition to the inter-jurisdictional work to develop common standards over the last decade, COAG has more recently decided to establish a single national regulator for commercial vessels in Australia. The national regulator proposal is still being developed at the time of release of this RIS and full details are yet to be agreed by all States and the Northern Territory. However, if agreement is reached, the Australian Maritime Safety Authority will commence operations as the single national regulator for commercial vessels on 1 January 2013.


The proposed regulations considered in this RIS are generally consistent with the regulatory plan proposed (and recently published) by the national regulator and hence are likely to provide the least disruptive path between the existing *Marine Regulations 2009* and the commercial certification requirements proposed to apply under Commonwealth law.

### 7.1 Nature and extent of the problem

As noted in Technical Paper 2, one of the problems leading to a requirement for vessels to be surveyed and hold certificates of safe construction and safe operation is information asymmetry. Information asymmetries arise in the commercial boating sector where, for example, passengers on commercial vessels are unable to form sound judgements on issues such as the seaworthiness and state of maintenance of the vessel or adequacy of crew complement. While safety performance can, to some extent, be expected to be reflected in an operator's reputation in the community, thus providing some information to consumers, this is a mechanism that is often unreliable and is unlikely to be sufficient to guide efficient consumer choice in the absence of regulation.

A concept of central relevance in safety policy and regulation is that of voluntary assumption of risk. In the marine sector, regulatory standards have long been set at substantially higher levels in commercial boating and related activities than in relation to recreational boating. This reflects a belief that recreational boaters are in a position to make their own judgements as to the risks they will accept and, as a corollary, make trade-offs in terms of whether they will incur additional costs to reduce or eliminate those risks. By contrast, in the commercial sector, passengers and other consumers of services are not likely to be in a position to assess risks for themselves and a higher degree of regulatory protection been seen as justified.

As is the case with many other transport modes, the issue of externalities is a significant one in marine safety and constitutes an important part of the overall justification for regulation. Generally speaking, the potential for an externality arises when unsafe behaviour on the part of one waterway user causes a risk of harm or economic loss to other waterway users.



The 2009 review of the *Marine Act 1988* found that the commercial sector generally operates safely. In the period 2003-04 to 2009-10, there was only one death in the commercial sector (in 2004-05)<sup>15</sup>. However this has not occurred in an environment of no regulations. Commercial vessel survey and certification requirements were strengthened in the late 1990s and this is likely to have contributed to the safe outcome.

## 7.2 Current requirements

### *Marine Act 1988 and Marine Regulations 2009*

The *Marine Act 1988* (Section 97) requires all trading, fishing and hire and drive vessels to have valid certificates of survey before they are permitted to be operated on State waters. It is an offence to operate an unsurveyed vessel or allow an unsurveyed vessel to operate. A certificate of survey is issued once an application from the owner has been received and the Safety Director (i.e. Transport Safety Victoria) is satisfied that the vessel complies with the relevant provisions of the nationally agreed standards relating to:

- › design;
- › construction ;
- › equipment; and
- › crewing.

The national agreed standards have historically been specified in the *Uniform Shipping Laws Code* (USLC). However, this is being progressively changed as the USLC is replaced by the *National Standard for Commercial Vessels* (NSCV). Victoria requires compliance with these standards through current regulations (refer to *Marine Regulation 2009*, Part 2, Division 2).

Section 99E of the *Marine Act 1988* makes it clear that the certificate of survey is also intended to set out requirements in relation to the operation of the vessel; and subsection (2) makes it clear that the Safety Director may impose any operational conditions thought necessary to provide for safe operations.

### *Reforms incorporated in the Marine Safety Act 2010*

Chapter 3, Part 3.3 of the new Act incorporates some changes to the current arrangements. Significantly, the new Act provides for the splitting of the multitude of different matters dealt with in the current certificate of survey into two. The Act requires that owners of commercially operated vessels will need to have:

1. a safe construction certificate that attests to the design and construction of the vessel, and its safety equipment, meeting nationally agreed standards (i.e. relevant aspects of USLC/NSCV); and
2. a safe operation certificate that attests to the competence and capability of the vessel owner (person or body) to operate the vessel safely for the intended purpose, within the geographic limits proposed.

This change has been made to improve transparency of what is required of new entrants in the commercial maritime industry and to improve the portability of certificates between jurisdictions. A certificate of survey is designed to be portable – to travel with the vessel in the event of a change of owner and/or a change of jurisdiction. However, it presently contains operational conditions. This restricts portability, as operational factors may change when the owner and/or jurisdiction changes. Equally, because it is not clear what the vessel owner has demonstrated its competence and capacity to do, the likelihood of having to seek recertification when moving between jurisdictions is significantly higher than what it needs to be. The advent of the safe operation certificate addresses this and accordingly limits the need for recertification – to that which is outside the vessel owners proven competence and capacity.

A further benefit of requiring dual certificates is that it requires both the regulator and vessel owners to pay greater attention to operational safety. Traditionally the dominant focus has been on the design, construction and maintenance of vessels and safety equipment that is carried on those vessels. However, given that approximately 70% of all incidents in the commercial sector (in recent years) are caused by human factors (a source of risk that cannot be easily or readily mitigated through characteristics of the vessel and/or equipment), an improved focus on operational safety is a priority. The requirement to hold a safe operation certificate supports this.

<sup>15</sup> There was a fatality associated with the operations of a commercial vessel in 2010-11.

It is important to note that the new Act includes transitional provisions (Chapter 9, Part 9.2, section 362) which deem existing vessels owners in the possession of certificates of survey as having both types of certificate already. Such vessel owners will be provided with the updated documentation (i.e. both a safe construction certificate and a safe operation certificate) when existing certificates of survey expire. It is therefore the case that the persons who bear the impacts of there being two certificates instead of one are the new entrants. In this regard, the DOT's assessment is (and recommendation to the previous government was) that the effect is not significant because the barriers to entry (i.e. the thresholds that need to be met) have not changed; they have just been made more transparent.

More substantive changes that have been incorporated into Part 3.3 of the new Act relate to penalty levels and the frequency of survey and certification.

Penalty levels applicable to not having a safe construction certificate or safe operation certificate are significantly higher (120 penalty units) than that which presently applies to operating an unsurveyed vessel (20 penalty units). The change responds to the limited but nevertheless persistent levels of non-compliance with the requirement for vessels to be under survey. It also responds to the possibility of an efficient breach – a situation where the maximum fine is less than the foreseeable costs of compliance. The possibility of an efficient breach is real in the commercial marine context due to the high incremental costs (tens of thousands) associated with, for example, bringing a recreational vessel up to commercial standards. Penalty levels therefore needed to increase to ensure that they provide sufficient deterrence.

In accordance with the *Marine Regulations 2009* (refer to section 211) certificates of survey are presently required to be renewed annually. The rigidity of this requirement increases the cost of surveying vessels and renewing certificates. It also exposes owners to the risk that certificates will not be renewed in time and that the operations of vessels without valid certificates will have to be suspended until the survey process is complete and deficiencies (if any) are rectified.

The new Act specifies a five-year certification cycle for construction certificates. The frequency of survey within the five year period would be determined on a risk basis. This option provides an opportunity to reduce regulatory burden without materially affecting the protections and assurances provided through the certification process. Similar approaches have already been adopted for the regulation of international vessels and are being adopted by other States/NT in Australia following inter-government approval of the National Standard for Administration of Marine Safety, Section 4. It is expected that for a large proportion of the fleet, given the risk they pose, a survey every 2 or 3 years would be acceptable.

The current regulatory requirements imply that a vessel can be a recreational vessel or a commercial vessel, but not both. The review of the Marine Act concluded that marine safety laws should contain clear and transparent provisions on this matter.

The benefit of allowing commercial vessels to be used recreationally is that it improves vessel utilisation and avoids the owner having to buy another vessel for recreational purposes. It does not detract from safety because the vessel being used for recreation is inherently a safer vessel due to the superior standards that commercial vessels are required to comply with.

However, the key disadvantage of this option is that it would produce a complex operating environment. If commercial vessels are to be allowed to operate for recreational purposes, it must be clear to enforcement officers which regime applies to each voyage and thus which legal requirements apply. The new Act includes provisions which enable recreational use of commercial vessels subject to conditions. The primary condition considered to be necessary is for those wishing to use their commercial vessels recreationally to notify TSV when they intend to use their vessel for recreational purposes. The notification would need to occur before the recreational use of the vessel commenced. This would enable a traceable "real time" system to be established so that enforcement officers can enforce the right requirements on a voyage by voyage basis.

It is envisaged that the Director will not allow some certificates of survey to be amended to enable recreational use of the vessel concerned. This would occur when the nature of the vessel is such that it cannot be safely used for recreational purposes (e.g. Queenscliff to Sorrento Ferry).

## 7.3 Objectives of the proposed regulations

The objectives of the proposed regulations are to protect and preserve the safety of users of commercial vessels by only allowing suitably constructed and maintained vessels to be used to carry passengers. Furthermore, the proposed regulations aim to improve safety outcomes by requiring commercial vessel owners to give consideration to operational risks and devise risk controls which enable compliance with the duty to ensure safety, so far as is reasonably practicable.

## 7.4 The base case

The Victorian Guide to Regulation requires that for new regulations or for regulations that are sunseting, a RIS should assume “zero” or no regulations as being the base case against which the proposed regulations and feasible alternatives should be assessed.

In this case, the adoption of a zero base case would imply that there are no regulations to specify how a person may apply for, or seek to renew commercial certificates (or apply to use commercial vessels recreationally). Indeed, the strict legal interpretation would be that unless regulations are made in relation to the application process then there would be no means to legally apply for a certificate.

So, while the base case of no regulations is always the starting point, in some cases it is clear that not having regulations would frustrate the intent of the Act and that having regulations is clearly superior to the option of having no regulations. The subject of analysis and considerations in these areas is therefore less on whether any regulations can be justified and more so on what regulations can be justified on the grounds that they would best satisfy the specified regulatory objectives.

The adoption of no regulations as the base case also implies that there are no standards against which vessels and proposed operational procedures can be assessed. This would introduce uncertainty regarding requirements to be applied, risk inconsistent treatment of applicants by the Safety Director and preclude the possibility of mutual recognition of Victorian certificates by other jurisdictions. This is to name but a few of the potential problems that caused by having no prescribed standards or other regulations, indeed, having no regulations is likely to lead to inefficient outcomes through “regulatory failure”.

Victoria was party to an Intergovernmental Agreement with other States and Territories and the Commonwealth in 1997 which documented an agreement to develop the NSCV and related national standards in order to modernise and standardise the USL Code and various commercial vessel standards then prescribed by different jurisdictions. Between 1997 and 2011, the NMSC has progressively developed the different parts of the NSCV along with State/NT reference groups and the resulting standards have been agreed to by all State and Territory transport ministers. It would be perverse for Victoria to now not regulate for the NSCV to be prescribed standard for assessing and issuing certificates of safe construction and safe operation.

The Victorian Guide to Regulation does provide exemptions from RIS requirements for regulations which are required under a national uniformity scheme when:

- › an assessment of the benefits and costs has been undertaken as part of a national RIS;
- › the national RIS has been recently prepared;
- › the national RIS has been assessed as adequate by the Commonwealth Government’s Office of Best practice regulation; and
- › Victorian specific impacts have been specifically considered in the national RIS, and Victorian stakeholders have been consulted.

DOT has reviewed all the relevant national RISs (refer to Technical Paper 7) and is confident that the conditions for exemption can be satisfied. One qualification relates to how recently national RISs have been prepared. A large proportion of the NSCV has been reviewed recently, and accordingly, corresponding RISs are relevant. However, there are certain parts of the standard that are dated.

A first principles review of national standards is a significant undertaking and if Victoria was to do this unilaterally, and then act unilaterally, this would contravene the terms and conditions (as well as the intent) of the intergovernmental agreement. Accordingly, DOT has argued that, notwithstanding the age of national RISs, exemptions from RIS requirements for proposed regulations which give effect to national standards are warranted.

This is particularly so given the the current national proposals which if approved would result in the Commonwealth taking over responsibility for regulation of all commercial vessels operations across Australia. Commonwealth law would be used to give effect to national standards and the Australian Maritime Safety Authority would be nominated in this law as the regulator (not TSV). These arrangements are likely to supersede the proposed regulations by 2013, which is around the time the current *Marine Regulations 2009* are scheduled to sunset. The compromise agreed, which has been incorporated in the proposed regulations, is to continue regulations that refer to the national standards at least until the end of 2012. This will enable continued regulatory coverage until:

- › proposed Commonwealth Law comes into effect; or



- › a clear decision is made to not proceed with the national proposal.

If the national proposal does not proceed, an implication will be that DOT will need to review national standards, prepare a further RIS and engage in industry consultation in the later part of 2012 so that new regulations can be made before the proposed regulations expire.

In addition to giving effect to the application processes and notification processes (for recreational use) necessitated by the Act and national standards necessitated by the intergovernmental agreement for marine safety, the proposed regulations do deal with a number of discretionary matters, including some changes from the status quo regulations. These are discussed in the sections that follow.

## 7.5 The proposed regulations

The proposed regulations give effect to the National standards for commercially operated vessels through:

- › prescribed standards applicable to the issue of a safe construction certificate for commercially operated vessels;
- › requirements for surveys to be conducted in accordance with the National Standard for the Administration of Marine Safety;
- › minimum prescribed conditions of a safe operation certificate for all commercially operated vessels;
- › additional prescribed conditions of a safe operation certificate for all hire and drive vessels;
- › crewing requirements for commercial vessels; and
- › requirements in relation to load lines and markings.

A summary of the analysis of discretionary matters dealt with in the proposed regulations is included in the sections which follow. Technical Paper 7 provides more details on the differences between the *Marine Regulations 2009* and the proposed regulations as well as the benefits and costs of the proposed regulations.

## 7.6 Identification and evaluation of feasible alternatives

As discussed in section 7.4, there is no further consideration of proposed regulations which give effect to national standards. This includes procedural regulations which give effect to nationally consistent methods for administering national standards (e.g. refer to proposed regulation 58).

### 7.6.1 Prescribed information to be provided by applicants

Notionally, there is choice regarding what information is sought at the time of application, but in practice there is little choice regarding what must be provided to enable compliance with national standards to be assessed, and accordingly, certificates to be issued. What is included in the proposed regulations is consistent with the status quo and amounts to the minimum information that is necessary to support the assessment of compliance with national standards. To request anything less than what is proposed would necessitate subsequent information transactions in any case, so nothing is to be gained by prescribing less than what is proposed.


### 7.6.2 Prescribed information to be included in certificates

The base case for this regulation is that the content of the certificates is left to the discretion of the Safety Director. The effect of the proposed regulation is to oblige the Safety Director to include in the safe construction certificate and the safe operation certificate (when considered together) all the information that is required to be included in nationally consistent certificates of survey.

The beneficial effect of the proposed regulations is therefore to provide certainty to commercial vessel owners that certificates will contain sufficient information to be recognised by other jurisdictions should a commercial vessel owner wish to reposition his or her business interstate (thereby necessitating a transfer of certification interstate). The risk associated with not making the proposed regulation is that Safety Director will not include all the information that is required.

### 7.6.3 Prescribed conditions

Proposed regulations setting out prescribed conditions are generally used to give effect to the national standards but there are some exceptions, for example, conditions are used to improve the enforceability of the payment of fees. Prescribed conditions are also used to support the efficacy of compliance monitoring and



enforcement activities, for example, by requiring copies of certificates to be carried on vessels so they can be inspected. Lastly, conditions are used on certificates to oblige the commercial vessel owner to notify of changes in the details of the owner and also to notify of changes in the details of the vessel.

Because conditions can also be applied to specific classes and types of commercial vessels, conditions are also proposed to be used to implement two specific requirements:

1. the International Maritime Organisation labour convention which has been ratified by the Commonwealth as being applicable to all vessels over 200 gross tonnes; and
2. the requirement for towage service providers to consult with operational partners on criteria and operational procedures for assigning towage vessels to ship movements

The aim of (2) is intended to address concerns raised by stakeholders who attended consultation sessions in February 2011. Specifically, there is a view that the fragmentation of service provision at Victorian ports needs to be addressed by requiring operational partners to consult with each other on critical matters. Another example of such a requirement is for pilotage service providers to consult with operational partners on their fatigue management and drug and alcohol management programs and policies.

In both cases, the prime justification for the proposed regulations is to address potential externalities. In both cases, the commercial transaction is between the service provider and the shipping lines, yet the other operational partners are affected by decisions made.

The nature and extent of these externalities are potentially significant. For example, if inadequate tugs are allocated to a ship movement then it can result in significant delay while additional or alternative tugs are provided. Alternatively, it may result in a pilot taking the decision to proceed with a ship movement despite the risks of doing so. At the extreme, this could cause an accident that places life and limb at risk and blocks shipping channels. Ports provide critical trade gateways and Victoria's commercial ports are no different. Indeed, Victoria's largest port, the Port of Melbourne, provides a gateway to many parts of south east Australia (well beyond Victoria's State borders). The value of trade through the port has been estimated at in excess of \$142,000 a minute. So the opportunity costs of delaying this trade is very significant.

The necessity of (1) is derived from Australian jurisdictions being signatories to the maritime labour convention. There is no evident regulatory problem which needs to be addressed in the Victorian context.

#### **7.6.4 Right to apply to vary**

The proposed regulations make it clear that certificate holders have a right to apply to vary conditions imposed on them by the Safety Director which, due to changing circumstances, may no longer be relevant. This right is additional to the right to ask the Safety Director to review his/her decision when conditions are imposed and the right to seek a VCAT review. The alternative of no regulations has the disadvantage of not catering to changes in circumstances.

#### **7.6.5 Approve to use commercial vessel recreationally**

The Marine Safety Act requires applications to seek approval to use a commercial vessel recreationally "in accordance with the regulations" (refer to section 69(2)) and also requires those that already have approval (to use a commercial vessel recreationally) to notify the Safety Director before each voyage of intended recreational use "in accordance with the regulations".

Applicants would be required to apply in writing and provide some evidence of their capacity to operate the vessel in a recreational context (Note: a certificate of competency or a marine licence would satisfy this requirement). The notification of intended recreational voyage is required to be by email, text or fax.

#### **7.6.6 Identification marks**

No regulations is an option. However, the Safety Director has previously used his/her discretion to impose this requirement. Accordingly, if the proposed regulations are not made then it is reasonable to expect that this requirement would be imposed anyway, using the same mechanism.

The marking of vessels (so that their owners can be identified) is critical to effective compliance monitoring and enforcement activities are clear arguments in support of establishing this requirement.

Clearly there are a number of potential technical options in relation to how the identification mark is made on the vessel but in principle and in practice there is no reason for the nature of the identification mark and its placement on the vessel to be different to what is required in relation to recreational vessels. A mark consistent with that applied to recreational vessels is what the proposed regulations require.

## 7.7 Assessment of benefits and costs of the proposed regulations

### 7.7.1 Prescribed information to be provided by applicants

The information that is required by applicants is a direct consequence of what is needed to assess national standards. Accordingly, the costs associated with providing such information is a direct consequence of the content of national standards. As indicated in section 7.4, the costs (and benefits) associated with the implementation of national standards are outside the scope of this RIS.

### 7.7.2 Prescribed information to be included in certificates

On the cost side, what is not known is what information the Safety Director would have included on the certificate in the absence of regulations that oblige the prescribed information to be provided. It would seem likely that the Safety Director would include most if not all information in the proposed regulation for the purpose of supporting compliance monitoring and enforcement activities.

On the benefits side it is not clear how many commercial vessels operator will wish to move interstate in the future. At the national level it was estimated that the number of vessels transferring interstate each year on average is approximately 440<sup>16</sup>. Given the size of the Victorian fleet relative to the national fleet, this would only amount to 20-25 vessels transferring interstate each year.

A further unknown on the benefit side is the extent to which a failure to include such information in the certificates would actually impede the “seamless” transfer of certification between jurisdictions. It is reasonable to expect a level of pragmatism to be applied. In the past it is has not been unusual for there to be communications between State regulators to substantiate details when vessels are transferred between States and Territories. The conclusion is that while this regulations is considered necessary, both the costs and the benefits attributable to the proposed regulations can be considered to be minor.

### 7.7.3 Prescribed conditions

The use of conditions to increase the incentive to pay fees does not imply any additional impost but is expected to support compliance. Equally, the requirement to keep copies of certificates on vessels implies only minor costs (photocopying, laminating, chain linking to appropriate part of the bridge of the vessel) but is quite important, from a practical perspective, in supporting the efficacy of compliance monitoring and enforcement activities.

The requirement to notify changes of owner details and vessel details are requirements which impose costs. If notification can be via simple means such as email, etc, costs can be regarded as minor. In addition, given the size of the fleet and its relatively static nature, the frequency of notifications can be expected to be low. This is confirmed by TSV experience of compliance with this condition when it has been imposed in the past. Indeed, it is believed that in the vast majority of cases there would be voluntary compliance by commercial vessel owners to ensure, for example, that they are not left off TSV mailing lists.

There are approximately 90 vessels of 200GT or greater operating in State waters that would be captured by the prescribed condition giving effect to the maritime labour convention. In practice, it is understood that all are currently complying with the requirements in the prescribed conditions, in part because it would not be possible for persons so young to obtain the relevant commercial qualifications to act as a crew member on such a vessel. A potential exception is hospitality staff (e.g. apprentice chef) but it is understood that in practice such staff are over 18 years of age.

The requirement for towage service providers to consult and document criteria and operation procedures is not expected to be a substantive requirement. Such procedures already exist and are likely already sufficiently documented. The real impost is the obligation to consult with operational partners. As discussed in Technical Paper 14 on costs associated with documenting and consulting on fatigue and drug and alcohol management, such consultations would foreseeably be undertaken as an adjunct to normal operational discussions. So costs can and will be minimised so that they are not significant at the aggregate level.

*Question: Do you agree that this regulation is necessary to support operational integration (in the interests of safety) in Victoria’s commercial ports?*

*Question: Do you support the proposed regulations? Why or why not?*

<sup>16</sup> A recent review of the national maritime regulator proposal suggests that this is an overestimate and indeed queries the original source of this estimate (which first appeared in the national RIS for the national maritime regulator proposal).

#### 7.7.4 Right to apply to vary

It is rational to expect that a commercial vessel owner will only seek to apply for a variations in circumstances where the owner believes he/she has a compelling argument to have a condition eliminated or varied and the size of the benefit exceeds any time and effort associated with seeking a variation. Provided there is a reasonable expectation that the variation process is not unduly costly or complicated, the proposed regulation will be an enabler of net benefits.

#### 7.7.5 Approve to use commercial vessel recreationally

The costs associated with firstly applying for approval to use a commercial vessel for recreational purposes as well as the costs associated with notifying of intended recreational use can reasonably be expected to be minor. If every vessel in the commercial fleet was to be used recreationally twice each week, then the aggregate compliance costs in aggregate would be in the order of \$200,000. This assumes 2 minutes of time (valued at \$32/hour) is spent sending a text message at a cost of \$0.25. In practice, not every commercial vessel owner will want to use his or her commercial vessel recreationally. In addition, in practice, the Safety Director will not permit every commercial vessel owner to use his/her vessel recreationally. As a result, the cost estimated is at the upper end of the foreseeable continuum.

#### 7.7.6 Identification marks

Given the base case would see the Safety Director impose this as a condition of safe construction certificates (as has been the case in the past), then there are no costs or benefits that can really be attributed to the proposed regulation. Arguably, the benefit of prescribing such a requirement in the proposed regulations (in this context) is that it improves the transparency of the requirement to new entrants. However, the cost imposed is not significant.

### 7.8 Conclusions

The proposed regulations for commercial certification involve a range of relatively minor changes which are intended to either improve transparency and certainty or assist compliance and reduce costs. The proposed regulation neither imply significant costs nor benefits but on balance, net benefits are expected to accrue.





## 8. Certificates of competency

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This Chapter of the RIS considers potential regulations covering requirements for certificates of competency for crew on commercial vessels in Victoria.

The proposed regulations largely reflect national standards (embodied in the NSCV Part D) which have already been developed and agreed in a national harmonisation process led by the NMSC. Due to this and the fact that the national standard has already been the subject of a recent separate RIS, it is not considered necessary or appropriate to consider alternatives to the proposed standards.

Furthermore, in addition to the inter-jurisdictional work to develop common standards over the last decade, COAG has more recently decided to establish a single national regulator for commercial vessels in Australia. The national regulator proposal is still being developed and at the time of release of this RIS full details are yet to be agreed by all States and the Northern Territory but are expected to commence in 2013. The proposed regulations considered in this RIS are generally consistent with the regulatory plan proposed by the national regulator and hence are likely to provide the least disruptive path between the existing *Marine Regulations 2009* and the crew certification requirements which are likely to apply under a potential national regulator.

### 8.1 Nature and extent of the problem

As noted in Chapter 2, one of the problems leading to a requirement for crew to hold appropriate certificates of competency is information asymmetry. Information asymmetries arise in the commercial boating sector where, for example, passengers on commercial vessels are unable to form sound judgements on issues such as the competence of crew members and adequacy of crew complement. While safety performance can, to some extent, be expected to be reflected in an operator's reputation in the community, thus providing some information to consumers, this mechanism is often unreliable and is unlikely to be sufficient to guide efficient consumer choice in the absence of regulation.

A concept of central relevance in safety policy and regulation is that of voluntary assumption of risk. In the marine sector, regulatory standards have long been set at substantially higher levels in relation to commercial boating and related activities than in relation to recreational boating. This reflects a belief that recreational boaters are in a position to make their own judgements as to the risks that they will accept and, as a corollary, make trade-offs for themselves in terms of whether they will incur additional costs to reduce or eliminate those risks. By contrast, in the commercial sector, passengers and other consumers of services are not likely to be in a position to assess risks for themselves and a higher degree of regulatory protection has therefore tended to be seen as justified.

Other potential problems are a straightforward lack of knowledge about the risks of an action and the difficulty in distinguishing very low probabilities from zero – which is a significant problem evident in the marine sector irrespective of the level of experience of the master.

Victoria and other States (and international marine safety agencies) manage these potential problems by requiring crew on commercial vessels to hold appropriate certificates of competency. Table 8.1 provides a summary of active certificates of competency on TSV's database in 2010.

**Table 8.1 – Active certificates of competency in Victoria (30 June 2010)**

Classification	Active certificates
Coxswain	1,907
Master Class 5 / Skipper Grade 3	455
Other Master and Skipper Class/Grades	145
Marine Engine Driver	511
Engineer Class 3	31
Unclassified Perpetual	14,065
<b>Total</b>	<b>17,114</b>

Source: TSV database, 30 June 2010

The classification of perpetual certificates is not recorded however it is known that 2,090 are a "Motor Boat Man" licence; 4,000 are Certificates of Service, and the remaining 7,975 are Certificates of Competency across all levels.

TSV has not issued perpetual certificates since about year 2000. All certificates issued since that time have required renewal after 5 years. In 2009/10 TSV renewed 169 certificates, and revalidated 3 certificates. In addition 234 new certificates were issued in 2009/10.

Historically, each State and the Northern Territory have had different training and qualification requirements and issued separate State/NT certificates of competency. For commercial vessel crew members who only ever intend to operate within local waters this is not a problem. However, for others who wish to work interstate or on voyages between States the differences cause impediments despite the existence of mutual recognition protocols.

The NSCV Part D has been developed by NMSC in cooperation with the States/NT to provide consistent national standards for certificates of competency. Once the NSCV Part D is adopted by all States/NT this will assist the mutual recognition process although certificates will still be issued by States/NT. Victoria specified the NSCV Part D as the basis for assessing and issuing certificates of competency for commercial vessel crew members in the *Marine Regulations 2009*. It is proposed to retain this requirement in the new regulations.

A third problem arises if a seafarer with a Victorian or other State certificate of competency wishes to serve on an international commercial vessel. Currently, at the national level, AMSA administers the qualifications system for seafarers serving on international commercial vessels. It meets the standards established by the international convention on *Standards of Training Certification and Watchkeeping 1978*, as amended (STCW). Certificates are issued in accordance with Marine Orders Part 3, Seagoing Qualifications.

State certificates of competency, even those issued in accordance with the NSCV Part D, do not generally satisfy the full range of competencies required to comply with the STCW. To serve on an international commercial vessel (one that meets the Safety of Life at Sea (SOLAS) requirements), the minimum qualification is the STCW Certificate of Safety Training (CoST). The States/NT require a lesser standard and issue a Certificate of Competency which is not STCW compliant but which is considered perfectly adequate for smaller intrastate or interstate commercial vessels.

To address this problem AMSA has been conducting a review and rewrite of Marine Orders Part 3, Seagoing Qualifications. The proposed changes, known as Tinny to Tanker or T2T, will provide a complete suite of AMSA STCW certificates to cover all Australian seagoing qualifications from near coastal to unlimited. It was originally intended that the new certificate structure would operate as an alternative for seafarers and operate in parallel to existing State/NT certification structures. The new AMSA near coastal certificates would be readily acceptable in all Australian States and Territories, as is required by COAG. However, if they prefer, seafarers would be able to choose to stay with States/NT issued certificates. This initiative has now been revised and included in the national reform proposals for commercial vessel safety regulation.

## 8.2 Current requirements

### 8.2.1 Marine Act 1988 and Marine Regulations 2009

Operators of trading and fishing vessels are required to hold certificates of competency issued by the Safety Director (i.e. TSV). Section 94 of the *Marine Act 1988* makes it offence for a person to act as the master or a member of a crew of a certain vessel unless appropriately certified.



A “Certificate of Competency” certifies that the holder has met the requirements for the type and/or operation of the vessel in deck and/or engineering disciplines. TSV issues unrestricted certificates of competency (generally recognised in all Australian jurisdictions) in accordance with Part D of the NSCV (refer to regulations 302 and 303 of the *Marine Regulations 2009*).

Part D of the NSCV specifies the number of crew members and their certification requirement (both deck and engineering) for commercial vessels in Australia. In terms of certification it covers:

- › competency requirements for each type of certificate, which are based on vessel length, engineering power and areas of operation;
- › standards for evaluating competencies, and
- › eligibility criteria (age, medical fitness, sea service etc).

Except for the coxswain certificate, which encompasses both deck and engineering components, certificates of competency certify either deck or engineering competencies. The master of a vessel must hold a master certificate appropriate to the vessel class, length and operational area. Similarly, the chief engineer of a vessel must hold a certificate in engineering appropriate to the vessel class, propulsion power, system complexity and operational area.

Common certificates of competency are issued at the coxswain and engineering levels, irrespective of the type of business or operations carried out by the vessel (e.g. whether a trading, fishing or passenger vessel). Above this level there are disparate qualification requirements according to the type of vessel and the criteria applying to the certificate.

### 8.2.2 Reforms incorporated in the *Marine Safety Act 2010*

The new Act merely reinstates requirements for, and powers to issue, certificates of competency (Chapter 3, Part 3.4). Sections 73, 74 and 75 of the Act set out the relevant offences, including the offence to not comply with a condition placed on a certificate of competency. Section 78 provides the Safety Director (i.e. TSV) with the power to issue certificates, in accordance with the regulations, with or without conditions.

Some changes which are incorporated in the new Act include:

- › the provision of the right to apply to have a condition varied or removed (section 79); and
- › the inclusion of Division 2 – local knowledge certificates.

The former is consistent with the general aim of the new Act to provide transparency and rights to review or appeal.

The inclusion of provisions dealing with local knowledge certificates replaces provisions which are currently included in the *Marine Regulations 2009* (refer to sections 315 and 317). In effect, the change is to merely relocate provisions from the regulations into the Act. However, in doing so, a “check” on the discretion of the Safety Director to set local knowledge certificates has been added. That is, before the Safety Director declares a part of State waters as needing a local knowledge certificate, the Safety Director must have regard to guidelines made by the Minister under section 31A of the *Transport Integration Act 2010*. These guidelines will be published when the new Act commences.


## 8.3 Objectives of the proposed regulations

The objectives of the proposed regulations are to protect and preserve the safety of users of commercial vessels by only allowing suitably qualified and experienced persons to act as the master or crew member of a commercial vessel.

A further objective is to support the consistent application of nationally agreed standards for the qualifications and experience that is necessary to act as the master or a crew member on specified classes and types of commercial vessels.

## 8.4 The base case

The *Victorian Guide to Regulation* requires that for new regulations or for regulations that are sunseting, RIS should assume “zero” or no regulations as being the base case against which the proposed regulations and feasible alternatives should be assessed.



In this case, the adoption of a zero base case would imply that there are no regulations to specify how a person may apply for, or seek to renew commercial certificates. So the potential implication of having no regulation is uncertainty and related inefficiencies surrounding how to apply. Indeed, the strict legal interpretation would be that unless regulations are made in relation to the application process then there would be no means to legally apply for a certificate. This is because the drafting of the relevant provisions of the *Marine Safety Act 2010* (see sections 77 and 78) specify that persons may only apply “in accordance with the regulations”.

So, while the base case of no regulations is always the starting point, in some cases it is clear that not having regulations would frustrate the intent of the Act and that having regulations is clearly superior to the option of having no regulations. The subject of analysis and considerations in these areas is therefore less on whether any regulations can be justified and more so on what regulations can be justified on the grounds that they would best satisfy the specified regulatory objectives.

The adoption of no regulations as the base case also implies that there are no standards against which vessels and proposed operational procedures can be assessed. This would introduce uncertainty and result in there being no transparency regarding the requirements to be applied, risk inconsistent treatment of applicants by the Safety Director and preclude the possibility of mutual recognition of Victorian certificates by other jurisdictions. This is to name but a few of the potential problems caused by having no regulations. Indeed, having no regulations is likely to lead to inefficient outcomes through “regulatory failure”.

Importantly, having no regulations could reasonably be expected to detrimentally impact on public confidence in the safety of marine operations (a specified object of the Act), and in doing so, frustrate the intended purpose of certificates of competency.

Victoria was party to an Intergovernmental Agreement with other States and Territories and the Commonwealth in 1997 which indicated agreement to develop the NSCV and related national standards to modernise and standardise the USL Code and various commercial vessel standards then prescribed by different jurisdictions. Between 1997 and 2010 the NMSC has progressively developed the different parts of the NSCV along with State/NT reference groups and the resulting standards have been agreed to by all State and Territory transport ministers. The NSCV Part D on crew competencies was one of the first priorities and earliest standards completed through this process. It would be perverse for Victoria to now not regulate for the NSCV to be the prescribed standard for assessing and issuing certificates of competency in Victoria.

Due to the fact that the NSCV Part D is the agreed national standard for assessing and issuing certificates of competency and has already previously been adopted by Victoria for this purpose in the Marine Regulations 2009, and the NSCV Part D was itself the subject of a RIS, it is considered that prescribing the NSCV as the basis for issuing commercial vessel certificates should be accepted without any further need for justification.

The Victorian Guide to Regulation does provide exemptions from RIS requirements for regulations which are required under a national uniformity scheme when:

- an assessment of the benefits and costs has been undertaken as part of a national RIS;
- the national RIS has been recently prepared;
- the national RIS has been assessed as adequate by the Commonwealth Government’s Office of Best practice regulation; and
- Victorian specific impacts have been specifically considered in the national RIS, and Victorian stakeholders have been consulted.

DOT has reviewed all the relevant national RIS for Part D and is confident that the conditions for exemption can be satisfied. The one qualification that is necessary relates to how “recently” the national RIS was prepared. The RIS from part D was prepared in year 2000 and accordingly can be considered dated.

A first principles review of national standards is a significant undertaking and if Victoria was to do this unilaterally, and then act unilaterally, then this would contravene the intergovernmental agreement that Victoria is a party to. Accordingly, DOT has argued that, notwithstanding the age of the national RIS, exemptions from RIS requirements for proposed regulations that give effect to national standards are warranted.

This is particularly so given the current national reform proposals which, if approved, would result in the Commonwealth taking over responsibility for regulation of all commercial vessels operations across Australia. Commonwealth law would be used to give effect to national standards and the Australian Maritime Safety Authority would be nominated in this law as the regulator (not TSV). These arrangements may supersede the proposed regulations by 2013, which is around the time the current *Marine Regulations 2009* are scheduled to sunset. The compromise agreed, which has been incorporated in the proposed regulations, is to continue regulations which refer to the national standards at least until the end of 2012. This will enable continued regulatory coverage until:

- Commonwealth Law comes into effect; or
- a clear decision is made to not proceed with the national proposal.

If the national proposal does not proceed, an implication will be that DOT will need to review national standards, prepare a further RIS and engage in industry consultation in the latter part of 2012 so that new regulations can be made before the proposed regulations expire.

## 8.5 The proposed regulations

Table 8.2 summarises the proposed revised Marine Regulations on certificates of competency.

**Table 8.2 – Proposed regulations – Certificates of competency**

Regulation title	Change from existing <sup>1</sup>	Impact of change
Certificates of competency to be issued in accordance with Part D of the National Standard for Commercial Vessels	No change	N/A
Certificate of competency (application requirements)	No change	N/A
Prescribed conditions of certificates of competency	New provision that obliges person acting as the master of specified craft to have their certificates of competency endorsed. Endorsement requirements determined in accordance with the national agreed standards.	No material change from practice. Numerous endorsements for specified craft are already required in Victoria. To avoid any doubt, provision makes it clear that the Safety director has the power to endorse.
Variations of conditions on a certificate of competency	New provision that spells out procedure in accordance with what is implied by section 79 of the Act.	No material effect. Codification of practice for benefit of transparency and certainty.
Requirement to carry certificate of competency	Regulation now allows the carriage of a copy of a certificate.	Not a material change. Change aids compliance.

1. Existing refers to Marine Regulations 2009

## 8.6 Conclusions

The proposed regulations for certificates of competency involve either no change, or minor non-material changes intended to either improve transparency and certainty or assist compliance.

Technical Paper 8 provides an overview of the national RIS for Part D of the NSCV as well as a summary of the current national proposal and their likely impact of certificate of competency requirements.

The proposed regulations do not propose any variations from nationally agreed certificate of competency requirements.



## 9. Operation of vessels

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This Chapter of the RIS considers the need for regulations in relation to vessel operations. In large part, operational matters in the recreational context are left to owners and masters to determine. This reflects the fact that intervention into the conduct of a recreational pursuit should be resisted. However, there are some circumstances where intervention is warranted. Indeed, there a number of areas where interventions have been made and continue to be in effect through the *Marine Regulations 2009*. These “status quo” regulations provide a useful point of reference, having evolved over time as a response to safety problems, high profile accidents and observed changes in risk factors. The arguments for a continuation of these regulations need to be considered. This is the purpose of this Chapter of the RIS.

### 9.1 Nature and extent of the problems

As discussed in Chapter 2 of this RIS, there are a number of reasons why unregulated marine operations can be expected to produce a less than optimal level of safety and other outcomes which are not economically efficient. Due to the presence of these circumstantial factors there is reason to contemplate intervention through regulations and/or through other feasible alternatives. However, interventions should only be made if there is a reasonable belief that interventions would produce net benefits. Furthermore, the intervention(s) made must be the best available out of all feasible alternatives considered.

The status quo regulations in the area of operational safety cover matters including the following:

- › “Powers of direction to prohibit operation of particular vessel” – enables enforcement officers to stop a vessel from operating (or restrict its operation). This power is actually established in the Act. Regulations merely require that where a direction is given, a copy of the direction and the reasons for making it be given to the owner as soon as practicable.
- › “Fuelling of recreational vessel or hire and drive vessel” – is aimed at mitigating the potential consequences of fuel related fire or explosion by requiring all passengers to leave the vessel until refuelling is finalised.
- › “Overloaded recreational vessel or hire and drive vessel not to be operated” – protects passengers from the risk of instability and swamping associated with loading of vessels beyond their specified capacity.
- › “Use of hire and drive vessel” – makes the master of a hire and drive vessel accountable for keeping within the geographic limits set for the operation of the vessel.
- › “Observer to be used when towing” – observers are persons who face the back of the vessel and watch persons being towed. They play a safety critical role in relaying information to the master of the vessel (and/or the person at the helm) regarding the safety of persons being towed and bystanders who are potentially affected by the towed water sport activity.
- › “Offence for persons involved with the operation of a commercial vessel to contravene Prevention of Collisions Convention” – this is the requirement for commercial vessels to comply with the international convention which specifies the rules of safe navigation.
- › “Offence for persons involved with the operation of recreational, government or hire and drive vessel to contravene *Prevention of Collisions Convention*” - this is the requirement for recreational and hire and drive vessels to comply with the international convention which specifies the rules of safe navigation.

### 9.2 The base case

The *Victorian Guide to Regulation* requires that for new regulations or for regulations that are sunseting, a RIS should assume “zero” or no regulations as being the base case against which the proposed regulations and feasible alternatives should be assessed.

In this case, the adoption of zero base case would imply the following:

- › There was no requirement to give the owner of a vessel subject to a direction prohibiting its operation a copy of the direction.
- › There are no requirements to minimise potential consequences of fuel fires or explosions when vessels are being refuelled.
- › There is no ready means of enforcing the requirement to not overload a vessel.
- › The incentive to remain in the geographic area dictated by the owner of the vessel to the hirer is limited to the terms and conditions of the hire agreement.
- › There would be no requirement to have an observer when engaging in towed water sports.
- › There would be no requirement for vessels in Victorian State waters to comply with the rules of safe navigation commonly referred to as the COLREGs.

The latter would clearly be in conflict with the intent of the Act. Section 96 makes it a serious offence (attracting a penalty of 120 units) for commercial vessels to contravene regulations giving effect to the COLREGs. Equally, it was clearly intended that when the Act was made, regulations would also be used to apply the COLREGs to recreational and hire and drive vessels operating in State waters. This is made clear by the specific head of power included in section 309(1)(j) of the Act. DOT would therefore contend that it is inappropriate to assume that the COLREGs do not apply as the base case. Applying the COLREGs is an international requirement. To not give effect to the COLREGs would cause Australia to be in breach of international treaty obligations.

In any case, having rules for the safe navigation of vessels in State waters which are uniform with those that apply in adjoining waters is clearly superior to the base case. Not having such rules can reasonably be expected to result in traffic chaos on the water (not immediately, but over time as conventions are forgotten and not enforced), with the outcome being an increase in collisions and other forms of on-water traffic incidents. The net benefits associated with having rules should therefore be clearly evident from the outset. Accordingly, DOT sees no benefit in considering this matter further. Moreover, consistent with the intent at the time of passage of the Marine Safety Bill the consideration of feasible options should focus on how the COLREGs could be more effectively enforced in the recreational context.

## 9.3 Identification and evaluation of feasible options

### 9.3.1 Written direction

The Act requires that the power to prohibit operation of a particular vessel set out in section 269 is exercised in accordance with the regulations. It is therefore necessary for the proposed Regulations to specify procedural requirements which must be complied with when section 269 is used.

The status quo option is to require such a direction to be given in writing and for a copy of this direction to be given to the owner of the vessels as soon as practicable after the direction is given. The owner must also be provided with a statement of reasons for the exercising of this power at the time when the direction is provided to the owner.

What is implied by this formulation is that the written direction may be given to the master and/or other persons in control of the vessel when the Safety Director or members of the police form the view that they need to exercise this power. This is logical to achieve the purpose for which the power has been made available, i.e. to prohibit the vessel for being operated or to require the vessel to only be operated on State waters on specified conditions for a specified period. There does not appear to be any alternative to this in order to achieve the immediate effect that the power was designed to deliver.

Equally, in order to avoid contravening human rights pertaining to the deprivation of property it is necessary to provide a copy of the written direction (if not the master or operator of the vessel at the time the power is exercised) and to give a statement of reasons why the exercise of the power is considered necessary. Again, there appears to be no satisfactory alternative to this approach.

By contrast, there is a viable alternative to giving written directions in the first instance - the initial direction could be given orally. However, there are risks that an oral direction may be misunderstood or misheard and that the purpose of exercising the power are not achieved. In addition, it is far more difficult to evidence that a direction was given; and the details of the direction, if it is made orally. The implication is that oral directions provide some scope for non-compliance, without the credible threat of enforcement action. For these reasons, on balance, DOT considers it preferable to maintain the status quo regulations.

The power set out in section 269 is currently contained in section 14 of the *Marine Act 1988* and has been used infrequently. It has therefore not been possible to quantify the costs associated with its administration. However, the costs associated with administering the power in this way are not significantly higher than the costs associated with exercising the power using oral directions, because ultimately it must be reduced to writing in due course and a copy must be provided to the owner of the vessel. If the owner of the vessel is the master or operator of the vessel when the power is exercised then providing the direction in writing form in the first instance will avoid the need for any further follow up action – which would always be necessary if oral directions were permitted.

### 9.3.2 Refuelling requirements

The status quo regulations require that no passengers are on board when a vessel is being refuelled at a wharf, pier or jetty. The cost of this regulation (relative to the base case of no regulations) is the effort on the part of passengers to disembark and reboard the vessel as well as the time delay associated with passengers reboarding once refuelling has been completed – such delay would be avoided if there was no reason or requirement to disembark the vessel in the first place.

In practice such delay is likely to be minor – 2 minutes in the context of a day out on the boat. Yet the benefits of this operational procedure could be significant, if it, for example, saved lives or prevented injuries in the event of a fuel fire or explosion on-board the vessel. Insurance data for 20% of the fleet for 2010, when scaled up to reflect the fleet as a whole, indicates that approximately 50 fuel fires and explosions occur on Victorian vessels per year. This would suggest that the risk of any one vessel being involved in such an incident in any particular year is still very low (1 in every 3,300 vessels) but this ignores the fact that most fire and explosion incidents occur in vessels with in-board petrol engines (estimate of 45 out of 50). If the focus is on this particular group of vessels (which are generally larger and more likely to make use of refuelling stations set up on berths, piers and jetties) then the risk of a vessel being involved in a fuel fire or explosion in any particular year is approximately 1 in 700.

Based on the data available (described in Chapter 2), the average number of trips taken per vessel is 6. Assuming that each trip will involve refuelling, and that the delay caused by the requirement to disembark and reboard is approximately 2 minutes, then the estimated time cost of 700 vessels complying with the requirement is approximately \$4,500 per year. Applying the same logic to a vessel sample which reflects the broader risk level (1 in every 3,300 vessels) results in an estimated compliance cost of approximately \$21,000 per year.

The benefit of incurring these costs is the avoidance of possible death or injury when a fire and/or explosion take place. It is important to note that while there are estimated to be 50 fuel fire and explosions per year, in the past this has only resulted in an average of 1 serious injury and 0.33 fatalities per year. Using the same methodology for valuing these injuries as used in Chapter 5 of this RIS, the weight average injury/fatality cost associated with a fuel fire or explosion is approximately \$37,000. (i.e. this excludes property damage costs etc which can not be avoided through the operational procedure included in the status quo regulations).

This comparison of costs and potential benefits is necessarily incomplete because of data limitations. However, it does help to provide an indication that the likely (minor) operation costs imposed by the regulation, when aggregated, are likely to be outweighed by the potential benefits (i.e. the average fatality/injury costs per incident). Thus, the remaking of the status quo regulations could be re-justified as a matter of principle.

#### Consideration of alternatives

Clearly the highest profile marine incident in recent years was the explosion on the “Leda II” at Pier 35 in Port Melbourne, which resulted in the deaths of two people. The explosion occurred following the refuelling of the vessel. In the context of this discussion what should be noted about this incident is that the master reportedly complied with the requirement to have passengers disembark while the vessel was being refuelled. The explosion occurred when passengers had reboarded the vessel and it was restarted. The incident indicates a flaw in the status quo regulation. It ignores the fact that the heightened risk of a fuel fire or explosion occurs due to a combination of refuelling and restarting processes – the latter providing the source of ignition. For this reason, a sensible change to the status quo, which does not appear to impose any additional costs, is to require the vessel to be restarted before passengers are allowed to reboard. If this regulation had existed and had been complied with then it is likely that the harm caused by the explosion could have been significantly reduced.

DOT has also given consideration to expanding the application of the regulation to all circumstances when refuelling is taking place – not just at berths, wharves and jetties. However, there are obvious practical limitations. For example, such a proposal would effectively criminalise refuelling from a “jerry” can or similar when a vessel has run out of fuel out to sea. Accordingly, a change of this type has been disregarded.

At the other end of the continuum of options, consideration has been given to narrowing the requirement so that it only applies to vessels with in-board petrol engines which are most at risk in theory and practice. DOT believes that this change, which would minimise compliance costs, has merit and should be a focus of consultation.

*Question: Do you agree with the proposed retention of the requirement to remove passengers from vessels while refuelling and starting a vessel at a berth, wharf or jetty?*

*Question: Do you support narrowing its application so that it only applies to vessels with in-board petrol engines?*

### 9.3.3 Overloading of recreational and hire and drive vessels

Section 87(4) of the Act creates an offence for the master of a recreational vessel, government vessel or hire and drive vessel to operate the vessel if the master knows that it is an unsafe vessel. Section 5 of the Act defines an unsafe vessel to include a vessel whose operation may endanger a person because of its overloading with persons or cargo. This is one of the most significant offences applicable to the masters of recreational vessels under the Act and carries a maximum penalty of 240 penalty units. Because of the high penalty applicable and the subjectivity of the knowledge element in section 87(4), it is not suitable to be enforced by infringement notice. However, without the capability to enforce this requirement through the use of infringement notices it is foreseeable that only the most severe of breaches will be prosecuted – typically after an incident when harms such as death and injury have already been suffered.

Given this context, the purpose of the status quo regulations on overloading has been to prescribe the elements of overloading with certainty and to enable enforcement by infringement notice. The impact is to increase the likelihood of enforcement action, the credible threat it poses to the non-compliant, and by implication improve the compliance rate.

Because overloading already constitutes an offence, the cost of complying with the requirement to not overload vessels cannot be attributed to the regulations. This is because the substantive effect is not to create a new offence but to enable the enforcement of an existing requirement.

Given this context, the benefit of remaking the status quo regulations are twofold:

- › they provide a clear indication to masters of recreational and hire and drive vessels of safe and unsafe loading levels; and
- › they enable effective sanctioning of overloading.

Given that there are only benefits and no additional costs (relative to the base case), regulations of this type can be justified.

#### Consideration of alternatives

The status quo Victorian regulations are largely harmonised with those in other Australian States and there is good reason for this to continue. If a vessel has an Australian Builders Plate affixed then the loading capacity specified on that plate is regarded as the maximum for that vessel. To account for the fact that not all vessels are fitted with builders plates, regulations typically include tables which specify the maximum loading for vessels of a certain length and breadth.

One point of difference at present is that for vessels greater than 6 metres in length, Victoria’s regulations specify formulae rather than continuing with a table. This is because for vessels greater than this length the carrying capacity of the vessel can vary significantly based on the vessel’s breadth. Most other States continue to prescribe maximum loadings through the use of a slightly more complicated table which specifies maximum loadings relative to length and breadth.

Victoria’s approach is technically more accurate but is self defeating to a degree because regulated parties wishing to comply, as well as enforcement officers, have difficulty in practice making the necessary calculations. Therefore, an option which would appear to have merit is for Victoria to harmonise its regulations with those in other States by omitting the existing formulae and replacing them with a table that specifies maximum loadings



consistent with those in other States.

#### 9.3.4 Use of hire and drive vessel outside designated area

For the most part, masters of hire and drive vessels do not require a licence, though there are two exceptions to this. A licence is required for a person to be the master of a hire and drive vessel which is trailerable, or which is capable of speeds in excess of 10 knots. While this licensing concession is a valuable tool for encouraging participation in boating, it does introduce particular risks to the hire and drive sector which require mitigation. The geographic limitation within which vessels can operate is an important risk control of this nature. Geographic limits are imposed on hire and drive vessels on the premise that they may be operated by unlicensed masters, with lower skills and knowledge and less capacity to manage their risks.

It is generally a condition of hire agreements that vessels not be operated outside their geographic limits. However, owners have little capacity to enforce this. In the absence of a credible deterrent, vessels could be expected to operate outside their geographic limits, putting the occupants at risk. However, in practice there is little or no enforcement of this requirement at present – which is evidenced by the fact that no infringement notices have been issued for this offence in the last 5 years – and despite this there is no evident safety problem associated with the hire and drive sector.

It therefore has to be concluded that no regulations in this area is a viable option. However, basing such a judgement on infringement notice data and the limited amount of reports made to Transport Safety Victoria is not necessarily a sound basis for making decisions. During the conduct of the review of marine safety laws, many owners of hire and drive fleets expressed concern about a purported high level of non-compliance with the requirement to stay within designated geographical limits.

It is clear that part of the reason why the requirement is not being enforced is because it is not evident to enforcement officers (who often do not specialise in policing specific geographic areas) what the geographic limits are. Furthermore, in a context where it is likely that enforcement officers will observe and have reason to act to address far more significant breaches of marine safety laws it is understandable that this requirement is not actively enforced. This is particularly understandable given that there is no evident safety problem associated with the operation of hire and drive fleets. However, this could change over time (i.e. a safety problem could emerge and become evident) and, if the status quo regulations are not remade, then there would be limited or no capacity for enforcement officers to act. The status quo regulations imply no additional costs because it is already a condition of the hire contract that operations be limited to the geographic limits specified. Accordingly, their retention as a risk management measure continues to have merit despite the present lack of enforcement and the lack of a safety problem (even though there is reported to be a high level of non-compliance).


#### Consideration of alternatives

As indicated, the specification of geographic limits is one important risk control that forms part of a package that is accepted as an alternative to normal licensing requirements. This logic clearly indicates that an alternative to the setting of the type of geographic limits currently set is to require licences to be held by all persons wishing to hire and operate a vessel. But this alternative would be of greater concern to owners of hire and drive fleets because such a change is likely to have a significant detrimental effect on their business – which in effect largely caters to tourists whose interest in using a vessel is ad hoc and fleeting. Importantly, this option ignores the fact that even under this scenario there still may be geographic limits that need to be enforced, i.e. those that pertain to the environs that the vessel is fit to operate in. For a combination of these reasons, such an alternative is not considered viable.

#### 9.3.5 Observer to be used when towing

As indicated in section 9.2, observers are persons who face the back of the vessel and watch persons being towed. They play a critical safety role in relaying information to the master of the vessel (and/or the person at the helm) about the safety of persons being towed and bystanders who are potentially affected by the towed water sport activity.

It is currently a requirement that any vessel towing person(s) must have an observer who is at least 12 years of age. This requirement is specified in the collection of government notices known as the Vessel Operating and Zoning Rules (VOZR). These are waterway rules made under section 15 of the *Marine Act 1988*. By virtue of transitional provisions included in the *Marine Safety Act 2010*, this pre-existing waterway rule will be taken to be a waterway rule made under the new Act. So the option of no regulations is a viable option, but it would mean that there is no change to the status quo.



However, it is proposed to convert this waterway rule into a regulation for the purpose of providing greater transparency and certainty that this requirement applies to all State waters. By contrast, if this requirement continued to be specified as a waterway rule it is possible that it could be varied in its application across the State, which is not desirable. To support this change the Safety Director would revoke the previous waterway rule the day before the new Act and regulations commence and come into effect.

As discussed in Chapter 2, there has been a substantial increase in injuries associated with the conduct of towed water sports. Available information suggests that inexperience, navigational error, errors in judgement and failure to keep a proper lookout are the main contributing factors. It should therefore be clear that holding all else constant, the cessation of the requirement to have observers on vessels when person(s) are being towed could reasonably be expected to make this trend even worse.

### 9.3.6 More effectively enforcing the COLREGs

The COLREGs are best thought of as the global maritime “rules of the road” which establish a framework of basic rules intended to reduce the risk of collisions between vessels.

In section 9.3, DOT argues that it is appropriate to assume that the COLREGs be given effect through the regulations as part of the base case because this is clearly consistent with the intent of the Act. Over time, not having such rules can reasonably be expected to result in an increase in collisions and other forms of on-water traffic incidents. The net benefits associated with having rules should therefore be clearly evident from the outset. Moreover, consistent with the intent at the time of passage of the Marine Safety Bill, the consideration of feasible options should focus on how the COLREGs could be more effectively enforced in the recreational context.

At present, the COLREGs are not proactively enforced because of the prohibitive costs associated with prosecuting offences through the court system. Despite this, there is a high level of what could be categorised as “voluntary compliance” with COLREG requirements - because experienced waterway users understand their function and importance. However, the growing level of non-compliance (as attested to by the members of the Water Police and authorised officers involved in policing certain waterways) is resulting in a growth in the incidence of collisions which correlates well with increased localised congestion in key waterways and at locations in the vicinity of popular boat ramps.

#### Options considered

An important initiative which was always planned to be introduced through the proposed regulations is the creation of infringeable offences applicable to recreational vessels which give effect to specific rules of the COLREGs. However, careful consideration of the scope to enforce COLREGs rules using infringement notices has revealed that it is not possible to enforce all COLREGs requirements in this way, as some are too subjective.

For an offence to be suitable for enforcement by infringement, the distinction between offending and complying conduct must be clear (this is discussed in more detail in Chapter 12 of this RIS). A number of the COLREGs rules are subjective to account for the fact that what a master of a vessel is required to do to comply with the COLREGs will depend on circumstances.

For example, Rule 5 - Lookout provides as follows -

*Every vessel must at all times keep a proper look-out by sight and hearing, as well as by all available means appropriate in the prevailing circumstances and conditions, so as to make a full appraisal of the situation and of the risk of collision.*

Needless to say, what is a proper lookout will depend on the prevailing circumstances and conditions.

This means that there is a limited number (3) of specific COLREGs offences which are proposed to be made infringeable. However, these three are perhaps the most important COLREGs offences which are not otherwise dealt with, for example, through the waterway rules. They are the rules relating to:

- display of navigation lights;
- giving way; and
- conduct in channels and fairways.

### *Display of navigation lights*

Due to problems associated with night-time fishing activity in shipping channels there is a pressing need to be able to enforce the use of navigation lights when operating in those channels. Enforcement officers have advised that it is common practice for some fishermen to conceal their location by turning off their navigation lights and the officers consider that it is only a matter of time before there is a major collision in Port Philip Bay that causes loss of life. The impact of the proposed regulation would be to provide enforcement officers with the capacity to sanction masters of vessels observed not using navigation lights at night. The proposed regulation does not imply any additional costs beyond the existing requirement to comply with COLREGS generally.

There was the risk that capital costs would be imposed if there was a requirement imposed on recreational vessels to strictly comply with Annex 1 to the COLREGS (which specifies the precise placement of navigational lights on vessels). However, this has been avoided by only specifying the type of lights required (e.g. sidelights and sternlights). This has also been taken into account in the specification of the general offence that will not be infringeable but which could be prosecuted through the courts. It should also be noted that vessels manufactured in Victoria are built for national and even international markets and navigation lights are consequently installed as a matter of course.

### *Giving way*

More so than in any other mode of transport, there is significant potential for intersection between the intended path of one vessel and the intended path of another. This is both because there are no physical rails or roads which limit possible vessel paths and because a lot of marine activity is undertaken without a specific destination in mind. So, given the greater need in principle, it is surprising that there are not more collisions caused by failure to give way. Part of the reason for this is that other rules force masters of vessels to approach possible points of intersection at low speed. The other significant explanatory factor is that up until recently there was less congestion and competing demands. Given the significant expanses of water available in the bays or along the coast there are ample opportunities to avoid other waterway users, but significant localised congestion is experienced at popular locations and at locations in the vicinity of popular boat ramps. For this reason, the importance of enforcing give way rules in the marine context can reasonably be expected to grow in importance over time.

The impact of the proposed regulation would be to provide enforcement officers with the capacity to sanction masters of vessels who are observed failing to give way where they should. The proposed regulation does not imply any additional costs beyond the existing requirement to comply with COLREGS generally.

### *Conduct in channels and fairways*

The rule is fundamentally about the obligations of masters using a channel or fairway of a limited width. The implication of limited width is that it requires vessels to pass each other at close proximity. The rule requires masters of vessels to stay to the right of the centre of the channel, i.e. it is analogous to the stay on the left hand side of the road rule applied in Australia and other jurisdictions internationally. However, an additional component of the rule is to get out of the way of vessels which, because of their size or draft must use most (if not all) of the width of the channel. The rule is particularly important in managing traffic in shipping channels, such as those in Port Philip, which are some of the busiest in Australia.

A further human factor relevant to the discussion is that many recreational boaters do not understand that large vessels have very limited manoeuvrability. The “get out of the way” part of the rule and the enforcement of this in the future will be critical to minimising the risk of a catastrophic incident within port waters involving a ship and a recreational vessel. Most of the 45 “close quarter” incidents which occur each year involving commercial vessels (refer to Table 2 in Chapter 2) are near misses between large international ships and recreational vessels.

The proposed regulations – to enable the enforcement of the conduct rules when operating in channels and fairways - will not provide a full solution to the array of issues discussed here. However, effective enforcement would bring about improvements in compliance and a reduction in safety risks. They are by nature beneficial enabling regulations that of themselves imply no extra costs.

## 9.4 Conclusions

On the basis of considerations made and presented in this Chapter of the RIS the conclusions reached are that:

The status quo regulations to require: a “direction” (refer to section 269 of the Act) to be given in writing; for a copy to be provided to the owner of the vessel as soon as practicable; and for a statement of reason to also be provided, should be retained in the proposed regulations. The alternative of oral direction introduces enforcement risks and, on balance, is not expected to result in administrative cost savings.

The benefits of retaining the operational requirement for all passengers to disembark the vessel when the vessel is being refuelled are likely to outweigh the compliance costs and so a regulation should be made. However, the expected effectiveness of this regulation can be improved by not allowing passengers to reboard until after the engine has been restarted. It is also likely that compliance costs can be minimised (without losing too much of the expected benefits) by limiting the application of the operational requirement to vessels with in-board petrol engines.

The benefits of retaining the operational requirement for all passengers to disembark the vessel when the vessel is being refuelled are likely to outweigh the compliance costs and so a regulation should be made. However, the expected effectiveness of this regulation can be improved by not allowing passengers to reboard until after the engine has been restarted. It is also likely that the compliance costs can be minimised (without losing too much of the expected benefits) by limiting the application of the operational requirement to vessels with in-board petrol engines.

However, DOT wishes to confirm the feasibility of this option through consultation. For example, is it always feasible or practicable to identify vessels that have inboard petrol engines by observation? Equally, is it reasonable to believe that the compliance costs saved by narrowing the scope of the requirement outweigh the risk-weighted benefits of maintaining the broader scope of applicability? These very specific questions are expected to be covered by responses to the more general questions posed in section 9.3.2 of this Chapter.

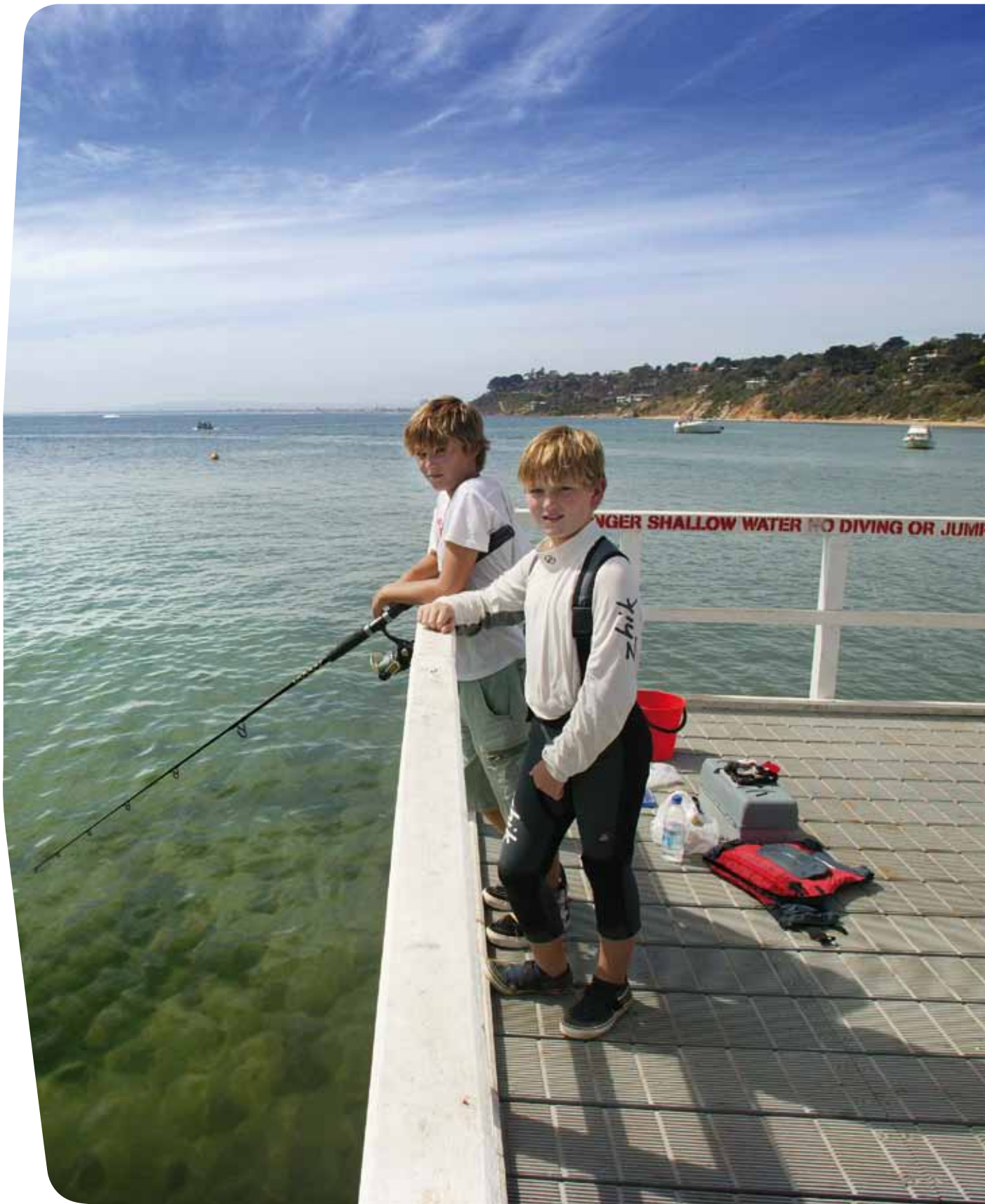
The proposed regulations are presently applicable to all vessels refueling at wharfs, jetties or piers. Depending on the outcomes of consultation, the outcomes of these regulations may be narrowed.

Overloading of vessels is already an offence and so the impact of the proposed regulations is merely to codify what constitutes overloading, thus making it more readily enforceable. The expected impact is therefore positive – it will continue to enable compliance with this requirement to be enforced. Of itself, it imposes no additional compliance costs because overloading is already an offence, and a serious one. The option to specify maximum loadings relative to length and breadth is preferred to the option to persist with the specification of a formula.

The status quo regulations which enable geographic limits to be set for the operation of hire and drive vessels imply no additional costs because it is already a condition of the hire contract that operations be restricted to the geographic limits specified. The retention of the capability to enforce geographic limits (as a risk management measure) continues to have merit despite the present lack of enforcement and the lack of a safety problem (even though there is reported to be a high level of non-compliance). Even if alternative controls were supported in the future (e.g. licensing of all hire and drive vessel masters), then a capacity to enforce geographic limits would still need to be maintained.

Holding all else constant, the cessation of the requirement to have observers on vessels when person(s) are being towed could reasonably be expected to make the substantial increase in injuries associated with towed water sports even worse. The available evidence suggests that contrary action should be taken i.e. the requirement for observers should be retained and there should be consideration given to improving the efficacy of observers or the knowledge and skills of masters so that they can more effectively utilise the information relayed to them by observers. In any case, the effect of the proposed regulations is only to convert a waterway rule into a regulation – rather than changing the nature of the requirement and resultant benefits and costs.

The continued application of the COLREGS to State waters was always intended when the *Marine Safety Act 2010* was passed. Accordingly, the base case should assume the continued application of the COLREGS. Given this context, the impact of the proposed regulations which codify the requirements to utilise navigation lights at night, the give way rule and rules pertaining to conduct in channels and fairways are expected to only have positive effects, i.e. they will support more effective enforcement of these requirements at a time when it is increasingly important that compliance with these requirements be maintained or improved.





## 10. Personal Flotation Devices (PFDs)

A Personal Flotation Device (PFD) is a garment in the form of a yoke, jacket or vest which is either inherently buoyant or buoyant via an inflated chamber. The primary purpose of a PFD is to support the user in reasonable safety in the water.

PFDs are classified into different types depending on the level of buoyancy that the PFD can provide. New Australian standards for PFDs (*Australian Standards 4758: Personal Flotation Devices*) were introduced from 1 February 2010. The new standards classify PFDs into four different types:

**Table 10.1 – PFD type that corresponds with standard level**

Existing Standards	AS 4758
Coastal Lifejacket	Level 275
	Level 150
PFD Type 1	Level 275
	Level 150
	Level 100
PFD Type 2	Level 50
PFD Type 3	Level 50 special purpose

### 10.1 Nature and extent of the problem

There have been a total of 185 deaths associated with recreational boating in Victoria over the last 21 years (1989-90 to 2009-10). Following a large number of deaths by drowning in the period 1999 to 2002, the Victorian Coroner's Office identified that a large proportion of these fatalities could have been mitigated by use of a Personal Flotation Device (PFD). Since then, the Coroner had consistently recommended that all occupants of a recreational boat should be required to wear a PFD at all times.


In 2005, following repeated Coroner recommendations, investigations and an extensive consultation process undertaken by Marine Safety Victoria, regulations were made for the mandatory wearing of PFDs when in vessels less than 4.8 metres in length at all times and at times of heightened risk in an open area of longer and larger vessels when they are underway. The regulations came into effect on 1 December 2005.

This Chapter examines whether there is sufficient evidence to demonstrate that the regulations have been effective in saving lives. In particular, it examines whether arguments in favour of intervention continue to exist, and whether the continuation of PFD carrying and wearing requirements can be justified for inclusion in the proposed regulations.

#### 10.1.1 Establishing the existence of a market failure

The nature of recreational boating is such that participants are exposed to a variety of hazards which are not present in other types of recreational activities. The lack of knowledge, ignorance or lack of consideration of such hazards (and their impacts) may lead to decisions which result in outcomes which were not intended or desired (e.g. death or injury of decision maker or others affected by their decisions). Technical Paper 10 provides an analysis of these risks.

As discussed in Chapter 2, the lack of awareness of risk and/or the under-appreciation of residual risk (i.e. it is above zero) is one of the key reasons why individual choices can be expected to fail to produce the optimal level of safety.



The other key reason is that a large proportion of recreational boating activity is undertaken in the company of others who are implicitly relying on judgements made by the master and the owner of the vessel about what safety equipment should be carried. Such persons are relying on the judgement of the master of the vessel without necessarily having an understanding of the master's knowledge, skills and experience, and importantly, without having any real understanding of the risks being undertaken on their behalf. The latter is particularly problematic when the master him or herself under-appreciates the risk (i.e. what will be necessary to address those "just in case" events).

In the sets of circumstances described above it is reasonable to conclude that:

- › incomplete information and information asymmetries exist;
- › unfettered decision making will be distorted; and
- › this provides grounds to consider whether intervention is warranted and can be justified.

However, the mere existence of circumstances or characteristics that can be expected to distort decision making (referred to as "market failures") is not a sufficient argument to justify intervention. There needs to be a reasonable expectation that the proposed intervention will result in the generation of net benefits, and indeed, the proposed intervention should be expected to maximise net benefits relative to feasible options.

### **10.1.2 Establishing the extent of the problem**

As discussed in Chapter 2 the number of fatalities associated with recreational boating has been decreasing over the last 20 years.

There were 56 incidents which resulted in a death by drowning over this period. These incidents were caused by a person thrown overboard, capsized vessel, collisions, swamped vessels, and a grounded vessel.

The two leading causes of fatalities (and drowning) are person overboard incidents and vessel capsizes.

It is evident from Tables 10.2 and 10.3 (on the page that follows) that the number of fatalities from these types of incidents has significantly decreased since the introduction of the existing regulations (indicated by the shaded area).

The number of fatalities due to a capsized vessel is not correlated with the number of vessel capsize incidents (refer to graph 10.1 below). In fact, the number of vessel capsizes has increased from 21 to 43 since the introduction of mandatory PFD wear. So this does not explain the evident reduction in fatalities.



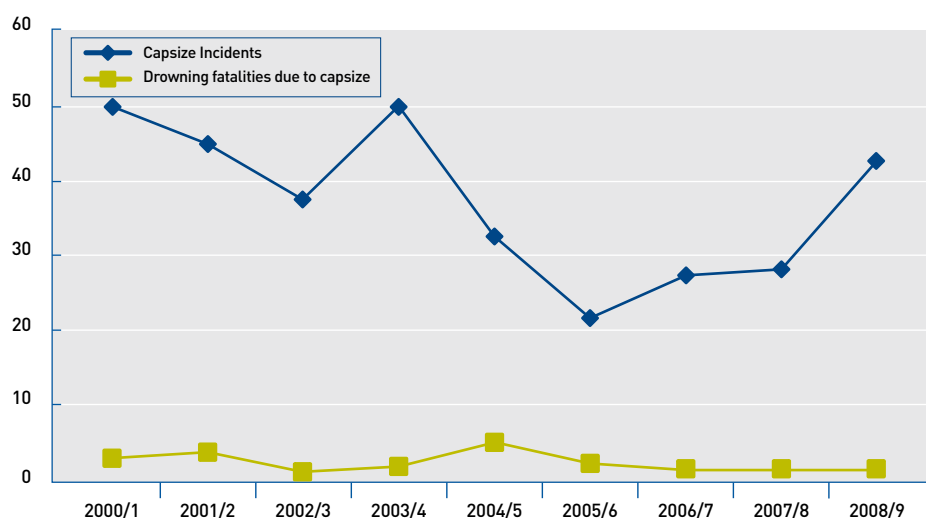
Table 10.2 – Drowning deaths associated with recreational vessel (by length of vessel)

Vessel Length	Year										Total
	2000 /01	2001 /02	2002 /03	2003 /04	2004 /05	2005 /06	2006 /07	2007 /08	2008 /09	2009 /10	
<4.8m	3	4	4	9	4	2	1	1	3		31
>=12	1										1
4.8m - 6m		4	1	1	2		1	1		3	13
6m - 12m				1	1						2
Unknown	1	3	3				1	1			9
<b>Total</b>	<b>5</b>	<b>11</b>	<b>8</b>	<b>11</b>	<b>7</b>	<b>2</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>56</b>

Table 10.3 – Drowning deaths associated with recreational vessel, by type

Vessel Type	Year										Total
	2000 /01	2001 /02	2002 /03	2003 /04	2004 /05	2005 /06	2006 /07	2007 /08	2008 /09	2009 /10	
Powerboat	1	8	5	7	5		2	1	2	1	32
PWC	1			1							2
Canoe, kayak, rowing boat, raft, pedal boat or fun boat	1	1			1	2			1		6
Off the beach sailing yacht	1			3	1						5
Kiteboard or sailboard			1								1
Unknown	1	2	2				1	2		2	10
<b>Total</b>	<b>5</b>	<b>11</b>	<b>8</b>	<b>11</b>	<b>7</b>	<b>2</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>56</b>

Graph 10.4 – Capsizing incidents involving recreational vessels versus drowning deaths caused by the capsizing of a recreational vessel



The decrease in drowning fatalities is also not due to a general decrease in the number of incidents. Available data suggests that the number of serious incidents have steadily increased since 2005/06 which is when the regulations requiring mandatory wearing of PFDs commenced (Note: more detailed information of these trends and the qualifications around available data is provided in Technical Paper 2 and some specific detail is included in Technical Paper 10).

In 2005, MSV commissioned a study to determine the number of recreational boating participants who wear PFDs. Table 10.5 shows the breakdown of PFD wear in 2005 divided into children and adults (including children between 10 and 18 years of age). Table 10.5 shows the proportion of participants that chose to wear a PFD without any form of government direction (apart from the regulations which exist for the carriage of PFDs).

**Table 10.2 – Observed PFD wear rates by length of vessel and age**

		Number observed	Number wearing PFD	Wear Rate
<4.8m	Child <10 yrs	110	81	74%
	Person >10 yrs	1086	187	17%
4.8m -12m	Child <10 yrs	135	100	74%
	Person >10 yrs	1351	85	6%

The table shows that PFD wear is predominant in children (74% in both vessels less than 4.8m and vessels between 4.8m and 12m in length), and this reflects the regulations present at the time mandating children less than 10 years of age to wear a PFD. Persons greater than 10 years of age (which includes adults and children between the ages of 10 and 18)<sup>17</sup> had a 17% wear rate in vessels less than 4.8m and 6% in vessels between 4.8m and 12m in length.

The information presented above is representative of the decision making with incomplete information which existed. Those involved in recreational boating heavily discount the possibility of ending up in the water and needing to wear a PFD. This is understandable in part. In most circumstances where the conditions are good, the likelihood of ending up in the water is low and recovery from such an event (e.g. person overboard) could be relatively straightforward. Indeed, in some inland boating locations where the water is only waist deep the best option may be to simply walk to safety. However, even in such circumstances a low frequency, high consequence event can occur. For example, a collision on such a waterway in good conditions (due to operator error, risk taking etc) may result in an unconscious person entering the water, who could quickly drown if there were no actions taken by others to save them. In such circumstances, the wearing of a PFD would provide potentially life saving protection.

It is this “exception to the rule” type event which is discounted by the majority. It is for these reasons that regulation was considered warranted and it may be that for the same reasons regulation continues to be warranted.

### 10.1.3 Evaluation of the existing regulations

To assess whether the regulations for the mandatory wearing of PFDs were successful, three considerations need to be made:

- whether the rate of wearing a PFD has improved;
- whether there has been a reduction in drowning related fatalities; and
- whether there have been cases where PFD use has saved peoples’ lives.

<sup>17</sup> This age bracket was chosen to not misrepresent the PFD wear regulations. All children less than 10 years of age must wear a PFD regardless of the length of the vessel. All persons above the age of 10 are subject to regulation 231 and 232 of *Marine Regulations 2009*. This breakdown will continued throughout the Chapter.

## PFD Wear Rates

Statistics for the PFD wear rates of individuals involved in serious incidents have been kept since 2005/06, when the data was first recorded. However, not all serious incidents are reported and for 25% of report incidents length of vessel was not specified in the database. The implication is that there is a gap in the data which limits the capability to assess compliance with the requirement for all persons in vessels less than 4.8m to wear PFDs. This limitation acknowledged, for the period of 2005/06 (1 Dec 2005 onwards) to 2008/09, the PFD wear rate for vessels less than 4.8m long was 60%. Furthermore, 45% of occupants of vessels greater than 4.8 metres in length wore a PFD in a serious incident. This provides an indication of the change in PFD wear rates since the wear requirements were introduced.

In addition to observing the levels of PFD wear in reported serious incidents, PFD wear in general has been observed. TSV commissioned MUARC to survey PFD wear rates. The results compare 3 different years worth of data. 2004/05 which represents pre-intervention observations, 2005/06 which represents observations directly after the regulations were brought in, and 2006/07, which was the first full year after the introduction of the regulations. The results are presented in Table 10.6.

**Table 10.6 – PFD wear rates by vessel length and by age post commencement of PFD wearing requirements**

All	2005			2006			2007		
	Number observed	Number wearing PFD	Wear Rate (%)	Number observed	Number wearing PFD	Wear Rate (%)	Number observed	Number wearing PFD	Wear Rate (%)
<4.8m	1196	268	22%	898	482	54%	1062	667	63%
4.8m - 12m	1486	185	12%	1237	193	16%	1285	171	13%
<b>&lt;4.8m by AGE</b>									
Child <10 yrs	110	81	74%	84	66	79%	84	81	96%
Non-Child	1086	187	17%	814	416	51%	970	584	60%
<b>4.8-12m by AGE</b>									
Child <10 yrs	135	100	74%	121	94	78%	110	89	81%
Non-Child	1351	85	6%	1116	99	9%	1167	81	7%

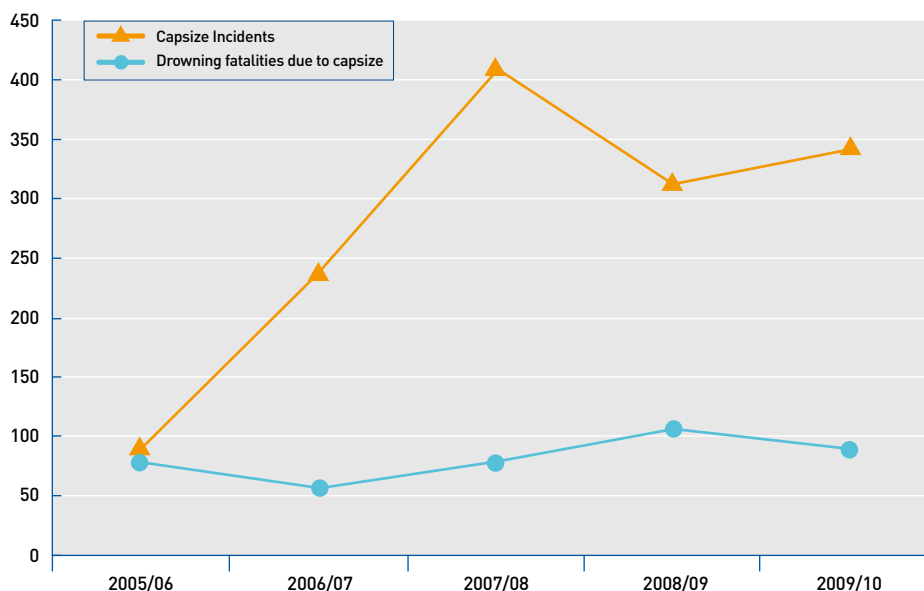
In general, the overall PFD wear rate in vessels less than 4.8m in length increased from 22% to 54% and 63% respectively in 2006 and 2007. Breaking this information down to distinguish between children less than 10 years of age, where PFD wearing is mandatory in all circumstances, and non-children, which encompasses adults and children between 10 and 18 years of age, there is almost full compliance (96%) for children and 60% compliance for adults.

There are significantly lower PFD wear rates for vessels larger than 4.8m, and this reflects that the current regulations only require PFD to be worn at times of heightened risk. This requirement is not effectively enforced because it is not an infringement offence. This, combined with the low probability of detection, is likely to be why the PFD wearing for adults using these vessels has not increased substantially since the PFD requirements were introduced.

Data from the Department of Justice (DOJ) on infringement notices issued is given in Graph 10.2. There are currently two PFD related marine infringement offences: failure to carry an appropriate number of PFDs, and failure to wear a PFD while underway on an open area of a vessel.

1386 infringement notices have been issued since the introduction of mandatory wearing of PFDs on vessels less than 4.8m in length.

Graph 10.7 – Number of infringement notices issued for not wearing a PFD when in a vessel under 4.8m in length



The second relevant infringement offence is the failure to carry an appropriate number of PFDs. This infringement has been issued 3.3 times less than the issuing of infringement notices for failure to wear a PFD (over the period of 2005/06 to 2009/10). This result is consistent with TSV's findings that there is high compliance with the regulation to carry the appropriate type and number of PFDs<sup>18</sup>.

Given the evidence from the MUARC reports and the infringement data, it is clear that a proportion of recreational boaters continue to not comply with the regulations introduced in 2005. The question is how much non-compliance is there? The best available information is that non-compliance is in the order of 40-45%. It is suspected that this compliance result would be very sensitive to an increase in enforcement resources. Enforcement resources are stretched at the moment given the large expanses of water that need to be covered across the State, particularly given the recent breaking of the drought.

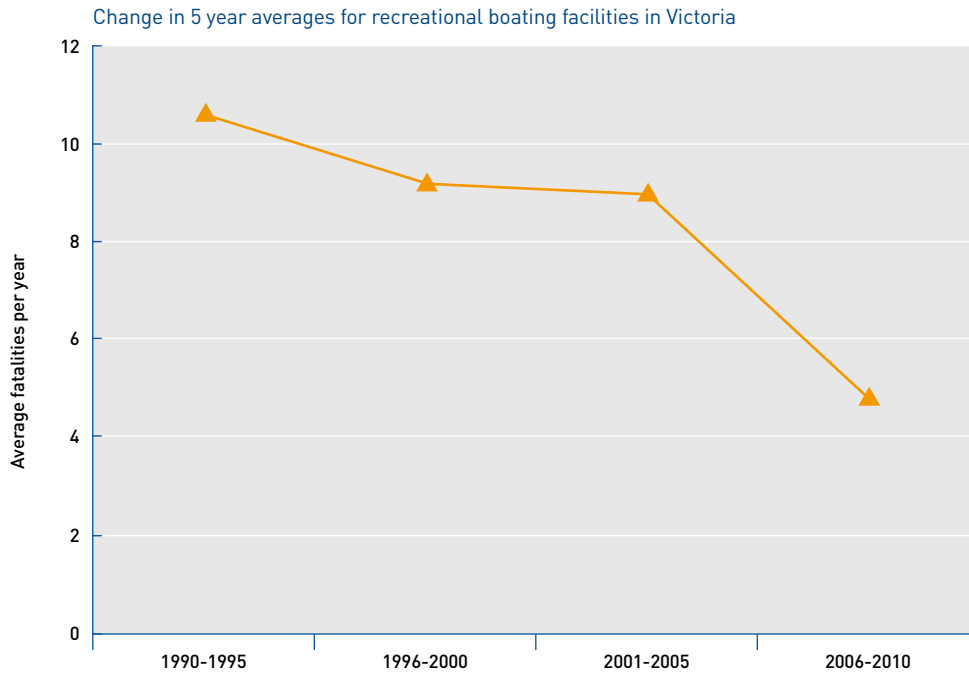
#### Fatalities

The total number of fatalities in the periods 2000/01 to 2004/05 and 2005/06 to 2009/10 was 39 and 22 respectively. The average number of fatalities per year for the two periods was 9 and 4.8 respectively.

Graph 10.8 shows the change in the 5 year average fatalities for recreational boating fatalities in Victoria since 1990. Prior to the introduction of the existing regulations, the 5 year average fatalities were in excess of 9, and after the regulations were introduced this average decreased to 4.8 fatalities. This graph shows that while there was a steady trend in fatalities prior to the introduction of the existing regulations, this trend is changed significantly post the introduction of the PFD wearing requirements. This looks to be a fundamental shift in the number of fatalities.

<sup>18</sup> MSV 2004, Use of Personal Flotation Devices by Recreational Boaters in Victoria, pg 4. As part of the Boating Safety Equipment Check Program, MSV observed that 96% of vessels checked complied with the regulation.

Graph 10.8 – Changes in 5 year averages for recreational boating fatalities in Victoria




The decrease in fatalities in the pre-regulation period and the post-regulation period can almost entirely be explained by the PFD regulations in 2005. This statement is justified by recognising that no other significant factors were undertaken or implemented during the period from 1 December 2005 until today. It could be possible that other factors have had an effect on fatalities on recreational boats, such as:

- changes in boaters' skill and knowledge
  - over this period, there have been no substantial changes to the recreational boating licensing scheme. Any amendments have only been related to minor changes in the multiple choice questions. There have been no increases in the requirements for obtaining a licence such as requiring mandatory theory training or practical training, or requiring successful completion of a skills-based test.
- changes in the proportion of large vessels in the Victorian fleet of recreational vessels
  - there is no evidence of any significant changes in the fleet of registered recreational vessels except that registered PWC numbers have increased almost threefold.
- changes in recreational boaters risk preferences
  - there is no evidence of any decrease in recreational boating activity. Recreational vessel registrations and the number of recreational boating licences issued have been increasing. So the decrease in fatalities is not related to a decrease in the exposure to recreational boating.
- changes in education campaigns in boating related clubs and societies
  - TSV has not undertaken any education campaigns targeting boating deaths by drowning and PFD use during the last 5 years.

The evidence overwhelmingly suggests that the regulations for the mandatory wearing of PFDs at all times on vessels less than 4.8m in length and at times of heightened risk have had a positive effect on marine safety in Victoria.

### Rescues

The attribution of the significant reduction in fatalities to PFD wear regulations is validated anecdotally by the large number of successful rescues observed since 2005/06. Technical Paper 10 provides a summary of a number of case studies in the period from December 2010 to May 2011. It is evident from these case studies that 11 lives were likely to have been lost had PFDs not been worn.



The period in which the case studies occurred is not unique. Even a cursory examination of media articles on successful rescues over the last 5 years demonstrates that the system of incident mitigations is working. PFDs and other forms of safety equipment are critical to continuing this, and in turn, enabling a continuation of the downward trend in fatalities associated with recreational vessel operations.

One of the bonuses of requiring persons to wear PFDs has been the reduction in difficult to fit or difficult to fasten/tie PFDs carried on vessels. PFDs which are now worn tend to be comfortable, correctly sized to fit the individual and worn properly.

The importance of correctly wearing PFDs should not be understated. Many fatalities result from PFDs which have not been put on correctly or put on in a hurry. Over time many people have been found drowned floating beneath the surface underneath a PFD which is entangled with them. This is indicative of either an ill fitted PFD which has come off in the water or of a PFD being thrown at a person already in the water who was unable to correctly fit it.

In all the case studies above, PFDs appear to have been worn and fitted correctly. So an unintended benefit of mandating the wearing of PFDs is a reduction in the deaths associated with PFDs being worn, but worn incorrectly and ineffectively.

#### 10.1.4 Conclusion

In 2005 there was clear evidence of the existence of a problem:

- 43 incidents which resulted in drowning deaths (involving recreational vessels) between 2000-01 and 2004-05 and in 35% of these incidents PFDs were not worn; and
- all available evidence at the time suggested that voluntary PFD use was very low. This is evidence of an under appreciation of risk.

The existing regulations have been successful in addressing the problem. This is evidenced by an increase in PFD wear rates, a decrease in fatalities (which can be mostly attributed to the regulations), and a growing procession of cases where people have been saved while wearing a PFD.

## 10.2 Objectives of the proposed regulations

The objectives of the proposed regulations are to increase net safety benefits by decreasing fatalities caused by drowning which are associated with recreational boating in Victoria, without imposing significant compliance costs.

## 10.3 Identification and assessment of feasible options

The preceding sections have established that a problem exists (ie deaths by drowning) and that PFD carriage and wearing requirements have made a contribution towards addressing this problem. However, it is necessary to consider whether the specification of mandatory PFD requirements is the best option available. This section summaries the identification and assessment of the merits of feasible options.

The primary function of PFDs is to keep people afloat while awaiting rescue. In practice, there are few alternatives to PFDs in fulfilling this specific function. For example, life rings can assist people staying afloat but are not as effective as PFDs, and are just as costly as PFDs, and therefore can be ruled out as an inferior option. However, the analysis of risk in Technical Paper 10 identifies that some of the alternatives to PFDs are things which can prevent the incident occurring, which by implication avoids the need to carry and wear a PFD. For illustrative purposes two of the most obvious potential “preventions” are considered:

- increasing the level of knowledge and skills through licensing so that licensed masters make better decisions about when and wear to operate to minimise the risk of capsize, person overboard, etc. Alternatively, this option would promote increased voluntary carriage and use of PFD by making sure there is improved understanding and appreciation of risk; and
- improving the design of and safety features included in a vessel when it is constructed so that it is much less prone to instability, which is a key cause of person overboard or capsizing incidents. Such changes would foreseeably reduce the number of incidents and therefore the need for PFDs.

Further alternatives to mandating the carriage and use of PFDs are the different methods which can be employed to increase PFD availability and wear rates. Based on approaches adopted in other jurisdictions, PFD loan programs and information campaigns present themselves as feasible alternatives.

### 10.3.1 Evaluation of options

Each policy option above is assessed as to its likely efficacy, cost and equity implications.

The efficacy of each option is related directly to its likely impact on increasing the proportion of recreational boaters who would wear PFDs.

Each option, except no intervention at all, implies costs. The minimisation of such costs, relative to effectiveness is a valid objective.

The key equity issue is whether the costs are borne by the same people who enjoy the benefits, or by the general public.

The questions under consideration for each policy options are:

1. What would be the benefit? i.e. how much would PFD wear rates increase?
2. What would be the cost? i.e. what needs to be done to achieve the outcome and how much does this cost?
3. Who would pay that cost? i.e. are the costs (either direct or indirect) being paid by the recreational boater who is generating the risk or are the costs being paid by others?

The answers to these questions are discussed in the following sections which relate to each option. This discussion allows consideration of the benefits, costs and equity implications of each option.

The policy options are evaluated using Multi-Criteria Analysis (MCA). MCA can be used as an evaluation tool in the absence of quantitative data and when it is not feasible or practical to quantify the main costs and benefits. The use of MCA is necessary in this case because in most cases there is an uncertain or non-quantifiable relationship between the option and the change in outcomes desired. Yet there is a need to consider each option on an equal footing.

MCA provides insight into the likely relative size of cost of each policy option.

In the MCA, each policy option is given a score, from -10 to +10, against each of the three questions above.

The base case is the no intervention option that will be discussed in the next section. This option has a zero score in relation to all criteria. Options are then scored by reference to whether the expected outcome resulting from the option represents a positive or negative change relative to this base case.

For example, a negative score on the “benefit” criteria would be applicable to any option that results in PFD wear rates being less than what is expected to occur under the no intervention option. A positive score would indicate an expectation that wear rates will increase i.e. benefits will increase. The level of the score between 1 and 10 indicates relative efficacy.

For costs, a score of 0 is applicable to the costs associated with the no intervention option. Somewhere between 0 and 10 would reflect a reduction in costs imposed, whereas 0 to -10 would reflect an increase in costs.

For the “who pays the cost” criteria, the issue is the extent to which external costs increase or decrease (by having more or less passenger fatalities) or by having more or less government subsidy. This criteria deals with aspects of equity and aspects of efficiency. Efficiency is best served when all relevant costs implied by a decision are internalised by the decision maker. Again a score of zero applies to the base case. A positive score means an option is effective in reducing external costs. A negative score means an increase in external costs, or alternatively, that the option implicitly involves a subsidy being paid by taxpayers to those involved in recreational boating in order to achieve the desired outcome – this is both inefficient and inequitable

Each criterion is given an equal weighting under the analysis.

After evaluating the questions for each policy option, the outcomes are compared and ranked.

## No intervention

The option for no government intervention would require the existing regulations to be repealed. Pursuing this option would result in Victorian recreational vessel masters being able to carry and wear a PFD at their own discretion. DOT expects that in the absence of regulation a proportion of recreational boaters are likely to discontinue wearing PFDs, but continue to carry the PFDs onboard recreational vessels as the PFDs have already been purchased. Once the PFDs become unusable, the recreational boaters who have discontinued wearing PFDs are faced with a choice to either replace the PFD with a new PFD or opt to not replace the PFD at all. It is not unreasonable to expect that a proportion of recreational boaters will opt to not replace their PFD if there is no regulation requiring them to purchase a PFD. Furthermore the recreational boater would expect to only use a PFD when they believe there is a high probability of ending up in the water (e.g. because caught in dangerous conditions).

The proportion of recreational boaters who will wear a PFD should decrease over time to levels observed prior to the introduction of mandatory PFD wear in 2005, and for reasons discussed (i.e. a drop off in the carriage of PFD), wear rates may reduce even further. Therefore, it is expected that in the long term the fatality outcomes in Victoria will revert to pre-2005 levels. This decrease is attributed to immediate effects (PFDs not being worn) and long term effects (PFDs not being replaced and therefore not worn). It is expected that there still will be levels of voluntary PFD carriage and PFD wear but this be less than the pre 2005 levels. Note: for the purpose of quantifying costs and benefits relative to the proposed option, expectations regarding what would happen under the base case are discussed in more detail in section 10.4 of this Chapter.

### What would be the benefit?

As per the discussion above, the expectation is that PFD wear rates would actually decline to a level less than that observed in 2005. There would be a lag in this. However, wear rates could be even lower under this option than what was previously observed.

### What would be the cost?

In the absence of regulations it is rational to expect that a proportion of people will choose not to carry and wear PFDs. Thus a proportion of the cost of new entrants purchasing PFDs, maintaining existing PFDs, and replacing existing PFDs at the end of their useful life will be avoided under this base case option. The proportion is unknown, but it is not expected to be too significant because the judgment is that most would consider the carriage of PFDs to be a prudent risk management measure.

### Who would pay that cost?

The direct costs would be saved by vessel owners but history suggests and dictates that costs will be borne by vessel owners (as well as society generally) when they end up in the water unexpectedly without a potentially life-saving PFD. Importantly, some that would indirectly pay the cost of such decisions i.e. passengers that drown, would not have been involved in the decision making process and most likely would not know the level of risk they exposed themselves to. Consistent with the past, half the people that pay the ultimate price will be the vessel owners and masters that are internalizing the costs of their decision whereas half the persons paying this price will be passengers who are uninformed and excluded from the decision making process. Accordingly, the option results in both inequities and inefficiencies that correlate in quantum with the increase in the number of drowning deaths that are expected to result under this option.

## Licensing reforms

An alternative to regulating via PFDs would be to improve the existing licensing scheme. This option would expand the knowledge and skills of the master of a vessel. The purpose of such regulation would be to reduce the likelihood of an operator or passenger entering the water through improved knowledge which would support better judgements being made. For example, improving recreational boating operators' knowledge and skills would reduce the likelihood of a disablement occurring. Solutions such as carrying an adequate amount of fuel and carrying a spare battery seem like obvious defences to a disablement but the evidence in the statistics (which do not represent the true totals) shows that a proportion of boaters find it difficult to think of these things.

### What would be the benefit?

Licensing supports PFD wearing by specifically testing knowledge of PFD carrying and wearing regulations. In the absence of regulations it is unlikely to be as effective in promoting PFD wear.



Furthermore, licensing is already aimed (and could continue to be aimed) at reducing the number of vessel disablements and the risk of people getting caught out when conditions change, but despite this, vessels disablements continue to occur and people continue to be caught out. While the frequency of pre-cursor incidents may be able to be decreased, a large number can be expected to continue (i.e. human error is inevitable) and PFDs and other safety equipment needs to be available to raise the alarm and preserve life. As indicated in the discussion about drowning fatalities, there is no evidence to suggest that inexperienced masters are over-represented in drowning fatalities. The evidence is that the persons who become victims to a confluence of events (which result in drowning deaths) are experienced recreational boaters.

Whilst improved licensing could target the concept of risks and its management as a means of supporting the wearing of PFDs, licensing only targets new applicants (approximately 35,000 per annum) and without subsequent reinforcement it is likely that ongoing PFD wear would decline over time for these new entrants, as they adopt the behaviour of their more experienced counterparts.

More importantly, because licensing reform will have no effect on those who already hold a licence - the vast majority of recreational boaters - the outcomes which can reasonably be expected to result will approximate those expected for the option of "no intervention".

As licensing would only be effective for a relatively short term and only on new applicants it is likely that PFD wearing would erode over time but perhaps not as much as for the base case. Accordingly the score assigned is only 1.

#### What would be the cost?

As with the no intervention option, it is rational to expect that a proportion of people will choose not to carry and wear PFDs. Thus a proportion of the cost of new entrants purchasing PFDs, maintaining existing PFDs, and replacing existing PFDs at the end of their useful life will be avoided. The proportion is unknown, but it is not expected to be too significant because the judgment is that most would consider the carriage of PFDs to be a prudent risk management measure.

But costs are expected to increase under this option. The increase is equal to the incremental cost of enhancing the existing knowledge based test, and by implication requiring more knowledge to be obtained. For example, increasing the total time impost per individual applicant by 1 hour will cost approximately \$2 million per year (based on the methodology used to assess the incremental cost of PWC endorsement included in Technical Paper 6). So any cost savings associated with not acquiring and maintaining PFDs is expected to be counter balanced by increased licensing costs that are expected to be largely ineffective (at least in respect to reducing the number of drowning deaths).

A score of -2 reflects the increased cost this option poses relative to the base case.

#### Who would pay that cost?


Because wear rates are not expected to increase significantly, the effects of this option will approximate those of the no intervention option. The direct costs would be saved by vessel owners but history suggests and dictates that costs will be borne by vessel owners (as well as society generally) when they end up in the water unexpectedly without a potentially life-saving PFD. Importantly, some that would indirectly pay the cost of such decisions i.e. passengers that drown, would not have been involved in the decision making process and most likely would not know the level of risk they exposed themselves to. Accordingly, the option results in an inequity and should be scored as such. The score assigned is that which is applicable to the base case (i.e. a score of zero). This is applicable on the assumption that licensing reforms are implemented on a full cost recovery basis.

The overall score for option 2 is -1.

### Recreational vessel standards

This option is to introduce recreational vessel standards which require the buoyancy and stability of a vessel to be sufficient to keep a vessel from capsizing or sinking. Such features help defend against the vessel taking on a large wave, inadequate freeboard or flooding due to a hull breach.

By ensuring that a vessel is able to maintain level flotation, an occupant of a vessel is able to maintain flotation in the water by being able to remain in the vessel. This is a substitute for a PFD as the vessel can provide the necessary flotation until search and rescue services arrive. In addition, while inside the vessel, the occupants are somewhat protected from hypothermia (and shark attacks) and have the opportunity to attempt to bail the vessel.



This option is focused on reducing the likelihood of entering the water as a result of an unexpected event (i.e. capsizing, grounding, person overboard, swamping).

#### What would be the benefit?

Boats with effective reserve bouyancy which guarantees flotation provide a place of refuge when a boat is swamped, holed or capsized. This is particularly the case if they float level after the event and people can get into them.

However, floating vessels are an imperfect substitute for a PFD. There are circumstances (such as fire or the vessel disintegrating or when the vessel remains afloat but some distance from the persons in the water) when the vessel is not a place of refuge.

Therefore, floating boats will reduce the number of fatalities but by a smaller amount than the option of mandating PFD carriage and wear. The difference can be estimated by reference to the frequency of incident types which lead to drowning deaths. Most drowning deaths are associated with person overboard and capsizing incidents. Improved vessels standards will reduce both but are less likely to prevent fatalities involving person overboard situations. This is because the person, by definition, is separate from the vessel and cannot rely on the vessel to assist him or her staying afloat. So this approach, in rough terms, is likely to only be 50% as effective as the mandatory carriage and wearing of PFDs.

A further issue to consider is that a change to boat standards does not happen immediately. Choices would need to be made about whether changes to standards are introduced progressively by only changing the standards applicable to new vessels, or in an accelerated fashion by requiring changes to be made to existing vessels to bring them up to standard. This is a choice that has been considered many times at the national level in relation to commercial vessel standards. Time and time again the analysis has shown that requiring changes to the fleet of existing vessels (in order to bring them up to standard) is cost prohibitive. So the likelihood is the option would only involve changes to standards to new vessels, and by implication, would take 8-12 years to deliver significant benefits within the scope of benefits this option is able to deliver.

Again the impact of this option in the short-term is likely to approximate the impact of no-intervention, but this would improve towards the end of the the life of the proposed regulations. The score assigned is 3.

#### What would be the cost?

The cost of building boats to standards is in the end met by the customer. It is likely to add approximately \$5,000 per vessel in costs. If it is possible to assume this would not impact on the volume of sales this would amount to an annual cost in the order of \$28.5 million per year (based on registration of 5700 new vessels per year). This is by far the most expensive option notwithstanding that these costs would only be applicable to new entrants.

Accordingly the score assigned is -10

#### Who would pay that cost?

Over the 10 year life of the proposed regulations this option is only expected to be marginally better than the base case at reducing the quantity of externalities, The score assigned is therefore 3.

The overall score for option 3 is -4.

## PFD loan programs

The US and Canada both have programs involving the temporary loan of PFDs to recreational boaters before the boaters set out on their trip. This is conducted at select boating sites around both countries. Both the US and Canadian programs target PFD wear for children. The loan programs are focused towards children's safety while participating in recreational boating activities and have the added benefit of increasing compliance with PFD regulations. The requirement in the US for children (the specific age is dependant on the particular State) is to wear a US Coast Guard approved PFD. The program is free and based on an honour system so it is dependent on PFDs being returned in the same condition that they were taken.

#### What would be the benefit?

A loan scheme for PFDs similar to those described (but also extended to adults) .could be expected to stop or slow the decline in PFD wear rates that are anticipated for other options discussed in the preceding sections. However, the expectation is that PFD wear rates would still be less than that currently achieved at present. The success or otherwise of this option is through the sense of obligation people have to wear PFDs if they are encouraged to do so and are also given free access to them. However, the effect of such programs tend to have a limited life. For example, the courtesy rider program funded by MSV was quite successful initially in

encouraging PWC operators and the operators of other powered craft to stop engaging in unsafe behaviour when observed doing so. However, over time boat operators became aware that MSV officers were not authorised to issue infringement notices and started to disregard (and not comply with) the requests made. It is reasonable to expect a similar dynamic would arise in relation to this option.

This option is expected to slow (relative to the base case) the decline in PFD wear rates from those that presently are being achieved. The score assigned is 5, indicating the belief that this option would be marginally more effective than new vessel standards in addressing the specific nature of the problem.

#### What would be the cost?

The costs associated with running such a program would be significant. Firstly, the cost of having a sufficient inventory of PFD's to loan would be substantial. Secondly, the number of people that would be needed to provide sufficient presence and geographical coverage would also be very significant. Without more detailed analysis the costs are difficult to quantify, but a cost of \$4m - \$5m p.a. would not be out of the question. Furthermore, in the medium to long-term the effect may be to undermine private incentives to carry PFDs. This would mean that the costs would increase over time. The score assigned is -6

#### Who would pay that cost?

There would be reductions in external costs relative to the base case due to the expected increase in PFD rates and reduction in fatalities but this positive efficiency effect (equal to a score of about 5) would be counterbalanced by the negative equity impacts associated with the significant government subsidy required to run the program (equal to -2 – which reflects the fact that this score needs to be placed in context of negative cost score applied to the vessel standards option i.e. -10 for cost of \$28.5 million p.a.). The score assigned is 3.

The overall score for option 4 is 3.

## PFD education campaigns

Providing education to boat operators about the use and benefits of a PFD is a non-regulatory strategy. The benefits of education campaigns are increases in voluntary PFD use and the fact that recreational boaters would become more likely to recognise situations where PFD use is appropriate.

The experiences of education campaigns run by TSV in Victoria and the US Coast Guard in California give some indication of the efficacy of education campaigns (which is discussed in more detail in Technical Paper 10). Both these programs show that education has an immediate positive effect on PFD wear rates. However, it was also shown that this does not necessarily translate to a long term change in boaters' attitude towards wearing PFDs as shown by the drop in numbers post the education campaigns. Therefore, the efficacy of education campaigns will only be maximised if education and promotion of PFD use continues.

#### What would be the benefit?

Improved education has not proven to be influential on PFD wearing rates unless funding and programs are continuous. If it is assumed that information campaigns are maintained, it is reasonable to expect that the reduction from current PFD rates that would result under this option would be less than that under the status quo but it is speculative to say by how much. The score assigned is 4 which indicates that it is likely to be more effective than vessel standards and licensing (because effects are more immediate and impact on all) but less effective than the loan program because PFDs are provided for use free of charge and nature of contact is more personal, which enhances the "moral suasion" effect.

#### What would be the cost?

Costs of repeatedly running such information campaigns could be very high. Indeed, the expectation is that the costs would be just as high as the costs associated with administering the PFD loan campaign (but would not increase over time). As with that option, the cost of boat owners acquiring or maintaining PFDs would still be applicable. Accordingly the score assigned is -5.

#### Who would pay that cost?

Because the information campaigns are expected to be reasonably effective, there would be efficiency gains. However, negative impacts on equity relate to the tax payer liability for the cost of the information campaigns. The cost would implicitly represent a significant subsidy paid to boat owners and operators. The score assigned is 2

The overall score for option 5 is 1

## PFD regulation

This option is to mandate the carriage and/or use of PFDs. There a number of possible permutations of wearing or carriage of PFDs at certain times depending on risk, location, vessel type, activity type, and environmental conditions.

The least onerous type of regulation is simply to require PFDs to be carried onboard vessels. The PFD type to be carried on board would not be prescribed, and users would be allowed to choose between PFD type 1, 2 or 3. This option would place the onus on the master and the passengers of a vessel to judge the appropriate time to wear a PFD. Evidence indicates that this option is inferior to regulations which also require PFDs to be worn in certain circumstances. While historically there has been high compliance with the regulations to carry a PFD for each person onboard a recreational vessel, the fact that incidents in many cases happen too quickly to retrieve and put on a PFD has lead to death and injury.

Regulations requiring mandatory wear could be made in accordance with the location of operation. Currently, regulations are based on three (or four if an off-the-beach sailing yacht) classifications of Victorian waters: coastal, enclosed, and inland.

However, "inland" waters cannot necessarily be classed as one homogenous group. For example, the cold waters of Lake Eildon and Lake Dartmouth are significantly different to waters in some rivers and lakes such as Lake Nagambie. The cold water of Lake Eildon means that even if a boater is in the water 100 metres from the shore, there is a significant risk of drowning as a person falling overboard could go into shock before being able to swim to shore. Conversely, the waters of Lake Nagambie are shallow enough at some times that it is possible to wade from boat to shore being waist deep in water. Similarly, enclosed waters include large bays such as Western Port and Port Phillip, which may have very different risk profiles to other enclosed waters.

Based on these considerations, it would be possible to mandate PFD wear in a geographically granular fashion. This could include not requiring a PFD to be worn (but still carried) in certain locations (e.g. locations with lower risk), or requiring different types of PFDs to be worn in certain locations. The problem with this approach is the potential to confuse recreational boaters due to the complexity required in matching PFD requirements to particular waters. This would result in low compliance with the regulations and therefore not achieve the expected safety outcomes.

Different cut-offs for mandatory wear based on vessel length could also be examined. A 6 metre breakpoint may be required as incident analysis shows that there are still high risks associated with recreational boating, and the regulation for heightened risk may not be sufficient for vessels between 4.8m and 6m in length. This issue was examined in detail as part of the original RIS process during the making of the 2005 regulations.

These arguments still stand as the physics of small boats do not change. For these reasons it is felt that the 4.8m cut-off remains a sensible cut-off for the mandatory wearing of PFDs. As discussed elsewhere persons operating vessel longer than 4.8m are required to wear PFDs at times of heightened risk. This combination of requirements provides a sound basis for the legislation. The public is familiar with it and there is no evidence suggesting it should be altered (albeit there are plans to enforce it more effectively). For these reasons the option of altering this cut off is not explored further.

Therefore an option put forward for consultation is to remake the existing regulations with minor amendments. This would require all occupants of a powerboat less than 4.8m in length and certain other recreational vessels to wear a PFD at all times while underway in an open area of the vessel. It will also require mandatory wearing of PFDs at times of heightened risk.

This option is favourable as it targets high risk activities (ie, operating alone, crossing a bar, operating on small vessels etc) and does not impose regulation in unnecessary situations. This option also prescribes the use of either a Type 1, 2 or 3 PFD depending on the vessel and location of operation. This recognises that certain PFD types are not suitable in certain situations.

### What would be the benefit?

Regulation requiring PFDs to be worn when on vessels smaller than or equal to 4.8 metres in length and at times of heightened risk has been an effective means of reducing fatalities since 2005. The proposed regulations recommend changing the definition of "heightened risk" so it is enforceable through infringement notices. This is likely to support increased compliance. Observational studies indicate that PFD wear rates for larger vessels at times of heightened risk are still very low so if compliance is improved by the proposed regulations some reduction in drowning fatalities can be achieved. However, few drowning fatalities are actually associated with vessels of this size (over 4.8m). In the last 5 years, notwithstanding persistently low PFD wear rates, there have only been 3 drowning fatalities involving such vessels. The score assigned is 7, reflecting the expectation that wear rates will improve from 60% to approximately 70%.

### What would be the cost?

Costs would essentially stay the same as they are now, with an expectation that costs would be avoided by some vessel owners under the base case (by not paying to replace PFDs). However, as indicated in preceding sections, most vessel owners believe that the carriage of a PFD or PFDs is a prudent risk measure to take. Nevertheless, aggregate costs are beyond what vessel owners would volunteer to pay and hence it is appropriate to assign a score of -1.

### Who would pay that cost?

To the extent to which the proposed regulations are successful in reducing drowning deaths further, external costs will be reduced. Because this is example is expect to prevent many fatalities over the life of the proposed regulations the expectation is that significant external costs will be saved. The score assigned is 5.

The overall score for option 6 is 11

## 10.3.2 Summary

The table below summarises the outcome of the MCA.

**Table 10.9 – Results of multi-criteria analysis**

	Option 1 - No Intervention	Option 2 - Licensing Reforms	Option 3 - Rec'nal Vessel Standards	Option 4 - PFD Loan Programs	Option 5 - PFD Education Campaigns	Option 6 - Personal Flotation Device Regulation
What would be the benefit?	0	1	3	5	4	7
What would be the cost?	0	-2	-10	-6	-5	-1
Who would pay that cost?	0	0	3	2	2	5
Overall Score after analysing questions 1, 2 and 3	0	-1	-4	1	1	11

The table above shows that the highest benefit will be achieved by continuing mandatory PFD wearing requirements. The next best option is to fund PFD education campaigns.

The reason regulation is seen as having such a strong relative benefit is that it is the only realistic option which provides a relatively low cost, high benefit, ongoing solution.

*Question: Do you agree with the presentation of the assessment of the pros and cons of these options? If not, why?*

*Importantly, do you agree with the conclusion that the option to mandate safety equipment is clearly superior to the identified alternatives?*

### 10.3.3 The proposed option

The proposed option, referred to as the proposed regulations, is to require:

- › a PFD to be worn on certain recreational vessels and hire and drive vessels at all times by person on an open area of the vessel while underway at all times ; and
- › a PFD to be worn on certain recreational vessels and hire and drive vessels while underway during time of heightened risk.

Heightened risk means:

- when the vessel is crossing or attempting to cross an ocean bar or operating within a designated hazardous area; or
- when the vessel is being operated by a person who the only person onboard the vessel; or
- when the vessel is being operated during the period commencing one hour after sunset and ending one hour before sunrise; or
- when the vessel is disabled; or

- if the vessel is a yacht and no safety barriers, lifelines, rails, safety harnesses or jacklines are in use.

The new definition of heightened risk is less subjective than the definition included in the *Marine Regulations 2009*. The result of these changes is that the individual components of the regulation will be infringeable (as a result of redrafting and removing subjective regulations). This is expected to support improvement compliance monitoring and enforcement.

## 10.4 The base case

Under the *Victorian Guide to Regulation (VGR)*, there are special requirements for the treatment of new regulations. One of the requirements is to assume there are no regulations and use this as the base case for the analysis of options that are undertaken. By implication, the extent to which PFDs are carried and worn would be voluntary and would reflect the owner/master's assessment of risks and the implied need to have PFDs.

In order to be able to adopt the base case of no regulations certain characteristics of behaviour must be reconstructed from historical data or estimated via other means, and then compared to the situation in which the proposed options are implemented.

To calculate a base case, the Department needs to reconstruct:

- › the number of recreational boaters that are likely to voluntarily carry a PFD;
- › the number of recreational boaters that are likely to voluntarily wear a PFD;
- › the number of recreational boaters that are likely to purchase an inflatable PFD; and
- › the number of drowning related fatalities that would occur, given the PFD wear rates that would be expected.

However, there are a few issues in taking a no regulation view. These arise from the difficulty in constructing the base case due to either a lack of historical data or no approximate information to reconstruct a base case. Technical Paper 10 provides the details of consideration which needed to be made when the base case was constructed.

### 10.4.1 Summary of the approach adopted (for base case)

In general, the appropriate historical data for Victoria will be used to proxy a base case scenario.

Section 10.1.3 highlights the PFD carry and wear rates pre-2005 (i.e. prior to the introduction of mandatory PFD wear under certain conditions). Using this information, the Department has assumed that 100% of recreational boaters will carry PFDs on board their vessel without regulation and 10% of recreational boaters will wear PFDs voluntarily.

The figure of 10% is a weighted average proportion of the wear rates for adult (10 yrs and over) boaters in vessels under 4.8 metres in length (which is 17% as observed in 2005) and adult boaters in vessels greater than 4.8 metres in length (which is 6% as observed in 2005). This figure ignores the wear rates of children, as they are captured under a separate regulation.

Given the fact that the technology for PFDs has improved remarkably in recent years, there has been a significant increase in the number of inflatable PFDs worn since 2005. It is not possible to estimate the proportion of inflatable PFDs which would be purchased under the base case, as the technology did not exist as it does today. However, the increasing popularity of inflatable PFDs (due to comfort) means that the same proportion of inflatable PFDs could continue to be bought in the base case (i.e. 20%).

The base case for this Chapter of the RIS will assume that existing PFDs that have been purchased will continue to be used (in this case used means carried or worn). However, since there is no regulation to wear or carry, the Department expects that the PFD wear rate (currently estimated to be 60%) under the base case would decrease over time. It will be assumed that the PFD wear rate in the base case will decrease by 10% per year, until it reaches the equilibrium of voluntary wearing (10%).

As part of this analysis, the Department treats the capital cost of a PFD purchased in the past as a sunk cost (a cost that has been incurred and cannot be recovered), and as a result will not be attributable to the proposed regulations. This means that under the base case, recreational boaters have access to the PFDs already purchased.

The PFD costs which are attributed to the proposed regulations under the model of analysis are:

- › purchase costs incurred by new entrants to recreational boating;
- › costs of servicing existing population of inflatable PFDs; and
- › the cost of replacing existing PFDs when they reach the end of their useful life.

The benefits attributable to the proposed regulations are the reduction in fatalities associated with drowning. Historical Victorian fatality data will be used to reconstruct a base case in terms of estimated numbers of drownings. Specifically, it will be assumed that 8.8 drowning related fatalities will occur in the absence of regulation. This is consistent with the average number of drownings in the 5 years immediately prior to the introduction of mandatory PFD wear in 2005.

A summary of assumptions employed in the base case of the cost-benefit analysis are:

- › 100% of boaters are likely to carry a PFD;
- › 10% of boaters are likely to voluntarily wear a PFD;
- › the PFD wear rate will decrease from 60% (approx. current levels) to 10% over 5 years (ie 10% per year);
- › 20% of boaters buy inflatable PFDs;
- › the capital cost of PFDs already purchased will be treated as sunk cost; and
- › 8.8 drowning fatalities will occur in Victoria under no government intervention.

## 10.5 Expected benefits of the proposed option

The main benefit of the proposed regulations is the reduction in fatalities associated with drowning. This reduction results from persons involved in an incident staying afloat and being rescued. In the option being assessed, the mechanism to provide flotation in the water is a PFD.

The benefits will be calculated over a 10 year period as the regulations will have a life of 10 years. The benefits will be equal to the difference between the expected outcomes of the base case (the detail of which is covered above in section 10.4.) and the expected outcomes of the proposed regulations.

As the Department has information on the number of fatalities which would occur under the proposed option (as it is an option to remake the existing regulations) this can be reconstructed easily. For example, the number of drowning fatalities which would occur under the proposed regulations with a PFD wear rate of 60% (this includes voluntary wear of 10% and compliant wear rate of 50%) is approximately 3 lives per year. This is the average number of drowning fatalities which have occurred in the 5 year period post the introduction of PFD wearing requirements.

The Department also expects that as a result of the new regulations that there could be an increase in compliance. This is due to the definition of heightened risk being adjusted to be clearer and easier to understand (see above) and because enforcement agencies will be able to issue infringement notices for heightened risk. Previously, it was only possible to prosecute offenders through the court system. As a result, enforcement agencies would seek to issue infringement notices for other offences (carriage of other safety equipment, operating unlicensed, or incorrect/no registration), rather than undertake this laborious process. It is expected that compliance with this regulation will increase, and this should result in an increased wear rate of PFDs and hence increased safety on the water. There also has been an increase in the TSV budget to fund 6 new boat safety officers (these costs are not attributable to the regulations as they would have been incurred regardless of the option taken). An increase in the active presence of enforcement on the water will complement the existing boat safety officers, authorised officers and the Water Police. It is unknown what effect on compliance this increase in enforcement will have. However, it is not unreasonable to expect that compliance with the regulations will increase marginally.

Overall, the Department expects that the capability to more readily enforce compliance with heightened risk as well as the increase in enforcement resources will cause the wear rate to increase to 70%. This wear rate should be achievable within 1-2 years after the implementation of the proposed regulations.

The method of reconstructing the number of fatalities in the base case is to estimate the level of compliance (or wear rate) that would occur in the absence of regulations. The assumption stated in section 1.4.3 will be used, namely that with a 10% PFD wear rate it is expected that there will be 8.8 drowning fatalities. The Department expects that the wear rate would decrease over time. This decrease would be attributed to recreational boaters not wearing but still carrying a PFD in the short term and/or not replacing their PFD in the

long term (and therefore not wearing a PFD). As stated in the base case, The Department expects the wear rate in the base case to revert to pre-2005 levels of 10% (which is the voluntary wear rate).

The method used to estimate the number of fatalities under the base case and under the proposed option is to relate PFD regulation wear rates as a proxy for the efficacy of the regulations. PFD wear rates have previously been observed pre-2005 and post-2005 as reported in section 10.1.3 (PFD wear rates). This information can be related to the number of fatalities as it was shown in section 10.1.2. (Fatalities) that the decrease in drowning fatalities from 8.8 on average in the pre-intervention period to 3 on average in the post intervention period was almost entirely due to the PFD regulations.

In other words, the underlying assumption is that there is a negative relationship between PFD wear rates and drowning-related fatalities. As PFD wear rates increase, fatalities will fall.

So, under these assumptions described, the number of fatalities which would occur under particular PFD wear rates can be interpolated from existing scenarios i.e. the number of fatalities which have occurred historically under approximate 10% and 60% wear rates. These values are given in Table 10.6.

**Table 10.10 – PFD compliance – Fatality Equivalence table based on known values for 10% and 60% wear rates**

PFD Wear Rate	Expected Fatalities	
1	1	
0.9	1.2	
0.8	1.5	
0.7	2.1	
0.6	3	Known value
0.5	3.92	
0.4	5.04	
0.3	6.16	
0.2	7.4	
0.1	8.8	Known value

The difference between the number of fatalities under the base case and the number of fatalities under proposed option is then calculated for each year. The differences in these figures represent the number of lives DOT expects to be saved each year over 10 years. The proposed regulations are expected to save approximately 53 lives in the next 10 years. However, it is not possible to meaningfully compare these benefits (i.e. lives saved) to the costs (i.e. money) which can be attributed to the proposed options. Therefore, a dollar value must be placed on saving a life and used to approximate the benefits of the proposed regulations.

The Value of a Statistical Life (VOSL) is a statistical measure which seeks to assign an economic value to saving a life. It is calculated by estimating a person's willingness to pay for good health outcomes. It is not used as a comparison for the value of a person's life to another, but is used for statistical purposes. The Victorian Competition and Efficiency Commission's (VCEC) recommendation for the VOSL is \$3.5m in 2007 dollars. This value indexed to 2010 values is \$3.825m.



**Table 10.11 – Assessment of benefits of mandating the carriage and wearing of PFDs.**

Base case											
Year	0	1	2	3	4	5	6	7	8	9	10
PFD Wear Rate	0.6	0.5	0.4	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Number of Fatalities	3	3.92	5.04	6.16	7.4	8.8	8.8	8.8	8.8	8.8	8.8
Proposed option											
Year	0	1	2	3	4	5	6	7	8	9	10
PFD Wear Rate	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Number of Fatalities	3	3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
Difference in Fatalities	0	0.92	2.94	4.06	5.3	6.7	6.7	6.7	6.7	6.7	6.7
VOSL (mil)	3.85	3.85	3.85	3.85	3.85	3.85	3.85	3.85	3.85	3.85	3.85
Benefits (in \$m)	0	3.542	11.319	15.631	20.405	25.795	25.795	25.795	25.795	25.795	25.795
Discount	1	1.035	1.071	1.108	1.147	1.187	1.229	1.272	1.316	1.362	1.410
Discounted Benefits	0	3.42	10.57	14.10	17.78	21.72	20.98	20.27	19.59	18.93	18.29
<b>Total in \$m</b>	<b>165.64</b>										

Consistent with the net-present value approach, each dollar value must be discounted to enable comparison of the values across each year. The discount rate which is used in these calculations is 3.5% and is consistent with Victorian Guide to Regulation recommendations.

The sum of the discounted benefits is \$166 million.

## 10.6 Expected costs of the proposed option

There are three types of costs imposed by the proposed regulations:

- capital costs of the PFDs purchased by new entrants;
- maintenance costs of inflatable PFDs for both existing recreational boaters and new entrants; and
- capital costs of replacing exist PFDs at the end of their useful life.

As mentioned previously, it has been assumed that the capital costs of the existing stock of PFDs are sunk and not attributable to the proposed regulations.

Based on an analysis of new vessel registrations, it will be assumed that there will be approximately 48,000 new registered vessels in the 10 years following the implementation of the proposed regulations. Persons registering each of these vessels will be required to purchase PFDs under the proposed regulations, incurring a capital cost. If inflatable PFDs have been purchased then maintenance costs will also be incurred.

### 10.6.1 Capital costs

Each new PFD bought within the time of the proposed regulations will be attributed to the cost of the regulations. Each new entrant (i.e. new recreational boats) must purchase a PFD to comply with the proposed regulations. New entrants will purchase PFDs according to their recreational vessel type and intended area of operations (i.e. a powerboat of 4m in length intending to operate in coastal waters will require a PFD Type 1). It is assumed that new entrants for specific vessel types will be in proportion to the existing fleet of registered vessels.

The PFD cost of \$80 is a weighted average cost of PFDs based on the proportion of existing vessels and assumed PFDs carried.

The numbers of PFDs to be purchased each year is given in Table 10.12. This table also calculates the capital cost to be attributed to the proposed regulations.

**Table 10.12 – Estimated number of new recreational vessels over assessment period and the associated capital cost of new PFDs**

Year	1	2	3	4	5	6	7	8	9	10
Number of new entrants	4286	4393	4503	4615	4731	4849	4970	5095	5222	5353
Number of PFDs (new entrants)	17168	17597	18037	18488	18950	19424	19909	20407	20917	21440
PFD Cost	80	80	80	80	80	80	80	80	80	80
Capital Cost of purchase for new entrants (\$mil)	1.37	1.41	1.44	1.48	1.51	1.55	1.59	1.63	1.67	1.71
Discount Factor	1.03	1.06	1.09	1.13	1.16	1.19	1.23	1.27	1.30	1.34
Discounted Capital Cost (\$mil)	1.33	1.33	1.32	1.31	1.31	1.30	1.29	1.29	1.28	1.28
										<b>Total</b>
										<b>13.03</b>

It has been assumed that the average number of PFDs per registered boat is 4. This has been calculated based on the weighted average number of existing PFDs per existing registered recreational vessels. These PFDs are multiplied by the average cost of a PFD and discounted by the appropriate discount rate.

The total discounted capital costs sum to \$13 million.

### 10.6.2 Maintenance costs

It will be assumed that there is no maintenance cost for non-inflatable PFDs (i.e. foam block and zip-and-clip PFDs). This is because there is no requirement to service these PFDs, whereas the opposite is true for inflatable PFDs. Inflatable PFDs are required to be maintained in accordance with the manufacturer's specifications. Maintenance costs will be incurred by both existing recreational boaters and new entrants that choose to purchase inflatable PFDs. The number of inflatable PFDs purchased by new entrants will be assumed to be consistent with the proportion of existing inflatable PFDs (20% of the total number of PFD Type 1s). The total number each year is increasing according to the number of new entrants purchasing inflatable PFDs (details are provided in Technical Paper 10).

The cost of maintenance includes the cost of replacing the inflation mechanism (\$20-\$30) and the labour cost associated with performing the maintenance. If the maintenance is done by self-service then the labour cost is the opportunity cost of performing the maintenance, but if the maintenance is undertaken by the manufacturer then this is the labour cost charged by the manufacturer. These two costs will be assumed to amount to approximately \$50.

It is expected that maintenance costs will on average be incurred yearly. Most manufacturers recommend that inflatable PFDs be serviced once every year (although some manufacturers accept servicing every 2 – 3 years). However, inflatable PFDs need to be serviced when inflated (at the very minimum the inflating CO2 cylinder would need to be replaced). This RIS will assume yearly maintenance.

Therefore, the maintenance costs are applied each year to each recreational boater who has purchased an inflatable PFD.

Maintenance costs are expected to sum to \$60 million.

### 10.6.3 Costs of replacing PFDs during the assessment period

The last cost implication to consider is the cost of replacing PFDs. PFDs are assumed to have an average useful life of 15 years. Accordingly, all the PFDs for new vessels that have entered the fleet over the last 5 years will not need to be replaced within the life of the proposed regulations. It is also the case that the majority of inflatable PFDs (which have largely been purchased post the establishment of the wear regulations) will also not be required to be replaced.

For the rest of the population of the PFDs in use it is uncertain at what stage in the 15 year lifecycle they are i.e. some will be in year 9 of their useful life and therefore will need to be replaced in the assessment period and some will be in year 3 and will not need to be replaced. Accordingly, it is appropriate to assume that two thirds of this residual population of PFDs (which are of an uncertain age) will need to be replaced during the life of the proposed regulations (i.e. the assessment period). This reflects the extent of overlap between the assumed life of a PFD (15) and the length of the assessment period (10).

Technical Paper 10 provides the details of the estimate. The estimate is that there would be \$20 million of capital costs associated with replacing existing PFDs.

## 10.7 Summary

Using the expected costs and benefits from the previous sections, the Department can conclude that the proposed regulations will provide a net benefit of \$74 million. The benefit-cost ratio of the proposed regulations is 1.81. This means that the expected benefits of the proposed regulations exceed the expected costs of the regulations.

### 10.7.1 Sensitivity analysis

Sensitivity analysis has been conducted on the areas discussed in this Chapter to determine the conditions under which the benefits and costs are equivalent, i.e. the BCR is 1. This occurs under each of the following conditions:

- 3.8 lives are saved per year (instead of 5.8 on average);
- the proportion of inflatable PFDs increases to 45% (of the total number of PFDs) ;
- maintenance costs increase to approx \$90;
- compliance under the proposed regulations would need to drop to 50%; and
- existing PFDs need to be replaced every 6 years instead of every 15 years.

The value of net benefits would be \$48 million if there was no increase in PFD wear rates from those experienced now. Under this scenario the BCR would be 1.53.

### 10.7.2 Concluding remarks

The proposed regulations are expected to save 53 lives over 10 years relative to the base case of no regulations.

These benefits are sufficient to justify the continuation of mandatory requirements to carry and wear PFDs in specified circumstances.

The proposed regulations, which are an amended version of the existing regulations, will require:

- a PFD to be worn on certain recreational vessels and hire and drive vessels at all times by person on an open area of the vessel while underway at all times; and
- a PFD to be worn on certain recreational vessels and hire and drive vessels during time of heightened risk.

The proposed regulations include an amended definition of heightened risk. This enables the regulation to become an infringement offence. It is expected that this will increase compliance with the regulation. This means that more recreational boaters will wear a PFD at times of increased risk (ie at night, while operating alone, or crossing an ocean bar) and therefore this should increase safety on the water and save more lives.

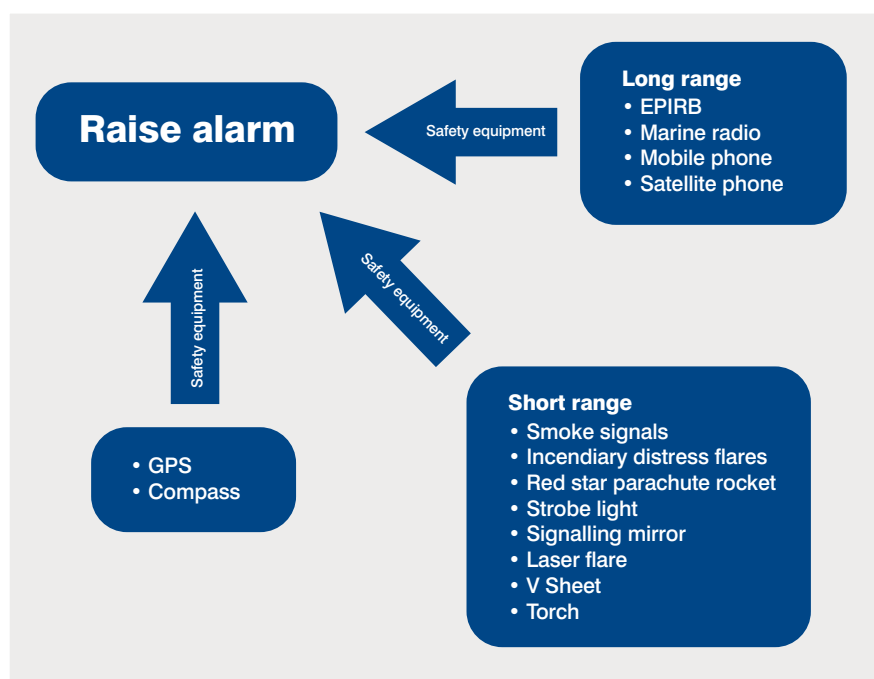


# 11. Safety equipment for recreational vessels

## 11.1 Role of safety equipment

In addition to PFDs (considered in the preceding Chapter) various types of equipment can be applied in the marine sector to mitigate the consequences of marine incidents on recreational vessels. While much of this equipment may also be used in the commercial sector, this Chapter relates only to recreational vessels. Such “safety equipment” typically does not prevent marine incidents from occurring. Safety equipment can generally be categorised as being useful for either ‘Raising the alarm’ (i.e. to attract a rescuer when an incident has occurred), or ‘Manage the consequences’ of the incident. The following figures provide an overview of the different types of equipment. A more detailed description of characteristics and functions of this equipment is provided in Technical Paper 11.

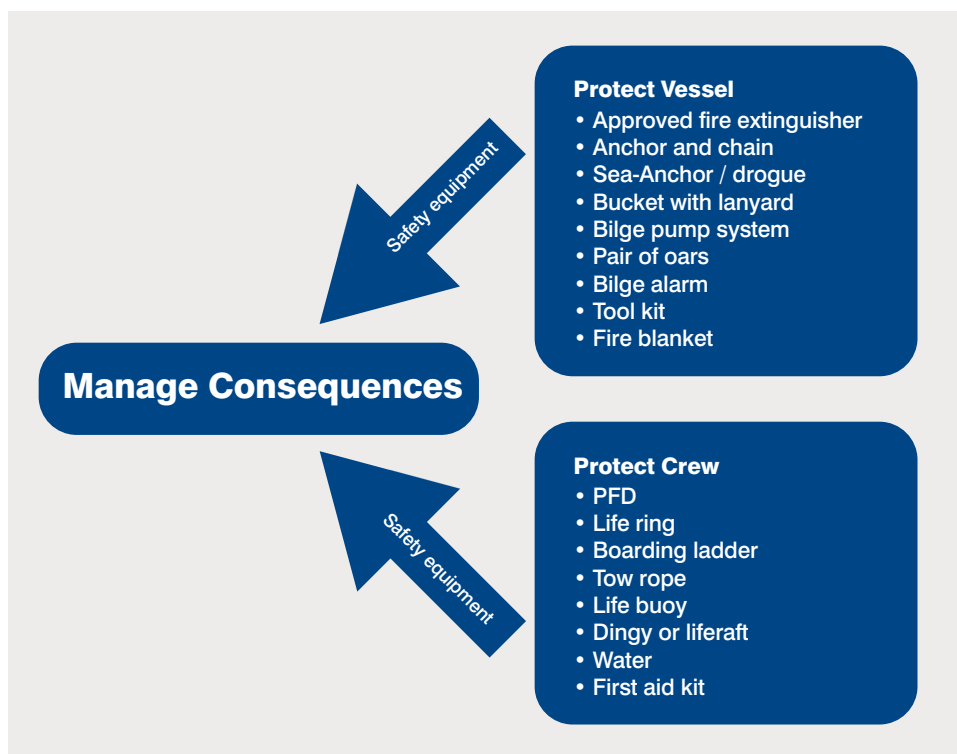
Figure 11.1 – Safety equipment used to raise the alarm following marine incidents



Notes: EPIRB – Emergency Position Indicating Radio Beacon, GPS – Global Positioning System

Source: ACIL Tasman

Figure 11.2 – Safety equipment used to manage the consequences of marine incidents



Source: ACIL Tasman

The data available regarding marine incidents is insufficient to 'unpack' the details of each incident to ascertain how often individual items of safety equipment were necessary. Therefore, in the analysis undertaken to support the proposed regulations (which is presented in this Chapter), safety equipment is grouped according to whether it is intended to raise the alarm or to preserve life following an incident.

The costs and benefits of the different equipment are then compared within these groups on the assumption that the function of the other group is performed. In other words, in evaluating the costs and benefits of equipment used to 'raise the alarm', we assume that if a rescuer is attracted the occupants of the boat will be alive and well when the rescuer arrives. Similarly, in evaluating the costs and benefits of equipment used to 'manage the consequences' we assume that if a boat is broken down and anchored it also has the means of attracting a rescuer.

The analysis here is, therefore, a conditional cost benefit analysis, i.e. the benefits of one group of equipment are analysed on the condition that equipment from the other group is available.

## 11.2 Nature and extent of the problem

Each year in Victoria, numerous marine incidents occur. As indicated in Chapter 2 of this RIS there are numerous sources of data on marine-related incidents and each have their pros and cons. Critical for the purposes of this Chapter of the RIS, the MIR report system is the only formal source of data on the occurrence of "response only" incidents. These are incidents (typically vessel disablements) where no injury or property damage has been sustained because the potential consequences of the incident (i.e. disablement) were able to be successfully mitigated.

The vessel disablement incidents formally recorded on the MIR system (presented in Table 1 below) are those where assistance or rescue was provided by the Water Police or by volunteer search and rescue agencies (for example, the Australian Volunteer Coast Guard). The incidents for which there is no data are those where vessel disablements and similar "response only" incidents were successfully mitigated because assistance was available and provided by other boaters or because circumstances were such that the owner, operator or users of the boat could help themselves. For example, in a shallow water environment close to shore it is possible to mitigate the potential consequences of a vessel disablement by entering the water and swimming/walking to shore.

Whether assistance is required from other boaters or from search and rescue agencies, safety equipment can be (and is) critical to successful mitigation – both in terms of “raising the alarm” but also in terms of “managing the consequences” while person(s) involved in the incident await rescue. The fact that so many incidents are successfully mitigated (i.e. only a relatively small proportion result in significant consequences) is a testament to the merits of safety equipment. Indeed, the critical question for the purpose of this Technical Paper of the RIS is how many deaths or injuries would have occurred if this equipment was not required to be carried? This is important because if it is reasonable to expect that many deaths and injuries would have occurred then the expense of carrying safety equipment can be justified (refer to section 11.8 for further discussion).


However, a further question which is critical to whether the proposed regulations should be made is the extent to which safety equipment would have been carried in the absence of regulations? The master of the vessel has a clear personal incentive to consider investing in safety equipment and to make sure it is available for use if and when needed. The individual will compare the cost of the equipment with the expected benefit it provides, noting of course that the expected benefit will be a product of the individual's perception and understanding of risk.

**Table 11.3 – Marine incidents between 2005-06 and 2009-10 – annual average**

	Fatalities	Serious injuries	Vessel lost	Vessel damage	Damage to property	No Damage	Total
Capsizing	1.4	1.0	2.2	4.2	10.6	14.0	<b>33.4</b>
Close Quarters	-	-	-	0.2	0.6	26.8	<b>27.6</b>
Collision	0.8	4.0	0.8	14.0	12.4	3.6	<b>35.6</b>
Explosion	0.4	0.8	0.6	-	-	-	<b>1.8</b>
Fire	-	0.2	1.6	1.2	4.0	0.4	<b>7.4</b>
Flooding	-	0.4	0.2	1.8	2.6	3.8	<b>8.8</b>
Grounding	-	0.8	0.4	4.6	13.0	47.2	<b>66.0</b>
Loss of Stability	0.2	-	-	-	0.2	-	<b>0.4</b>
Loss or presumed loss	0.2	-	1.0	-	0.4	2.8	<b>4.4</b>
Onboard incident	-	2.0	-	-	0.2	3.0	<b>5.2</b>
Other personal injury	-	2.6	-	-	-	0.6	<b>3.2</b>
Person in trouble	-	0.6	-	-	-	-	<b>0.6</b>
Person overboard	1.4	3.0	0.4	0.2	0.2	4.0	<b>9.2</b>
Sinking	0.4	0.4	2.6	1.8	4.4	0.6	<b>10.2</b>
Structural failure	-	-	-	0.4	0.4	-	<b>0.8</b>
Swamping	-	-	0.2	0.8	2.0	1.4	<b>4.4</b>
Disablements	-	0.2	0.4	12.4	26.6	860.0	<b>899.6</b>
Total	4.8	16.0	10.4	41.6	77.6	968.2	<b>1,118.6</b>
<b>Total (% of incidents)</b>	<b>0.4%</b>	<b>1%</b>	<b>1%</b>	<b>4%</b>	<b>7%</b>	<b>87%</b>	<b>100%</b>

Data source: Transport Safety Victoria

A problem intended to be addressed by the proposed regulations is an important form of imperfect information: the problem of distinguishing low risks from zero. Owners and masters of vessels, particularly those who have a level of experience, tend to discount the possibility that they will find themselves in a precarious situation and in need of help. There may be an attitude of “that will never happen to me”. In such situations, the decision to not carry safety equipment is the product of a distortion. This is because in most cases (because of the relatively low risk) the risks are disregarded rather than being managed. The risks, while being real, are at too low a level to be tangible.



A further problem is that the master or owner's decision to disregard certain risks and the associated need for safety equipment will not be apparent to passengers on the vessel – particularly those who are infrequent users of vessels and have little or no understanding of the nature or extent of the risk being taken on their behalf. There is both an information asymmetry between the master and his or her passengers as well as potential external costs which can be expected to be equal to the expected costs associated with the risk that is borne by the passenger. Such costs are not taken into account by the master or owner when making the decision to purchase and maintain safety equipment. As a result, the decision making process is distorted and can reasonably be expected to not produce the economically efficient outcome from society's point of view.

Government intervention is therefore justified if it can be proven that it is reasonable to expect net benefits to accrue from the proposed action and the proposed action can be shown to be the best out of the feasible options identified as being available.

### 11.3 Objective of the regulations

The objective of the proposed regulations is to save lives, prevent injuries and improve economic efficiency by encouraging recreational boaters to equip their boats with the amount and type of safety equipment which can reasonably be expected to produce net benefits, taking into account all relevant societal costs.

### 11.4 The base case

To assess the costs and benefits of a proposed regulations and alternatives requires an understanding of the base case, or the situation which would exist if the regulations were not made. In the base case Victorian boaters would be under no compulsion to carry safety equipment at all.

This needs to be compared with the 'regulated case', or the situation that would exist if the proposed regulations (or alternatives to them) were made.

In many cases new regulations are introduced to address an existing problem. In those cases the base case is usually the same as the status quo. However, in this situation the proposed regulations are similar to those already in place so the base case must be estimated another way.

There are two conceptual approaches which could be taken to estimating the cost society would incur from marine incidents in the base case. The first is to infer from other similar jurisdictions. The second is to infer from history in Victoria. As is discussed in Technical Paper 11, neither of these approaches is possible in this case.

When estimating the base case it is important to bear in mind that, whether the proposed regulations are made or not, most boats in Victoria are already fitted with some safety equipment. Equally, an asset base of safety equipment that is of the type that is carried (not installed) already exists. The costs associated with the acquisition of this equipment is "sunk" and it is reasonable to expect that, even if the regulations are not made, the owners of this equipment would continue to carry it on their vessels at least until a decision needs to be made about investing in its maintenance or its replacement.

In summary, in the base case, we expect that a significant proportion of Victorian boats would continue to carry some safety equipment and that the number of marine incidents which would occur each year on average will be the same as the number that has occurred in the past. However, while the number of incidents is independent of the decision, the same cannot be said for the outcome of those incidents.

If the proposed regulations are not made then the incentive to carry and maintain safety equipment would be reduced, although not to zero. Therefore, the amount of safety equipment in use across the fleet would decline. For the reasons indicated, this decline would occur gradually. As this happened, the chance of any given incident ending 'badly' would increase.

Therefore, if safety regulations were relaxed it is reasonable to expect that the number of marine incidents would not change, but that more incidents would end badly than has been the case in recent history.

It is not possible to know how much more serious marine incidents would be if the proposed regulations were not made, so the base case cannot be quantified. Rather, the analysis presented here estimates the number of incidents that would need to be prevented from 'ending badly' in order that the benefits of the regulations are at least equal to the costs. This is known as a break-even analysis.



## 11.5 Identification of feasible options

In order to identify options it is appropriate to consider why the amount of safety equipment which is carried might be less than would be ideal. As discussed in Technical Paper 2 there are two main reasons, namely imperfect information and external costs. In particular, the risk that an individual will be involved in an incident is very low so there is a tendency to expect that 'it won't happen to me'.

To address these reasons directly the Government could:

1. run information campaigns designed to address incomplete information;
2. expose boaters to the full cost of their decisions; and / or
3. require that recreational boats carry certain safety equipment.

### 11.5.1 Evaluation of options

In this section we consider each of the above three policy options in terms of their likely efficacy and their equity implications.

The efficacy of each option is related directly to its likely impact on increasing the proportion of recreational boaters that carry safety equipment, with the aim of mitigating the consequence of marine incidents (i.e. death and injury).

The key equity issue is whether the costs are borne by the same people who enjoy the benefits, or by the general public.

The questions under consideration for each of the policy options are:

1. What would be the benefit? Specifically, by how many more recreational vessels would carry the safety equipment?
2. What would be the cost? And who would pay that cost?

These questions are discussed in the next section. This discussion allows us to identify the benefits, costs and equity implications of each policy option by examining these questions.

The policy options are evaluated using Multi-Criteria Analysis (MCA). MCA can be used as an evaluation tool in the absence of quantitative data and when it is not feasible or practical to quantify the main costs and benefits. MCA provides insight into the likely relative size of cost of each policy option. In the MCA, each policy option is given a score, from 1 to 10, against each of the three questions above (with negative scores for costs and positive scores for benefits). After evaluating the questions for each policy option, the outcomes are compared and ranked.

#### Analysis

The first policy option is to use information to increase the uptake of safety equipment.

We expect that the benefit of this approach would be low to moderate. Our expectation is that information campaigns would cause only a small increase in the proportion of boats which would start carrying safety equipment.

The campaign considered here is similar to campaigns used to promote various road safety messages, such as 'don't speed' or 'don't drink and drive'. However, the desired outcome is different. In the road safety examples, the campaigns are intended to make drivers behave differently. They are reinforced by roadside advertising such as billboards which can be seen while driving so the behaviour change can be made instantly. By contrast, an information campaign around safety equipment would only be effective if it caused boaters to purchase and/or carry equipment that they would otherwise not have. This would not be connected as closely to the campaign itself and it is expected that information campaigns will be less effective at achieving this type of outcome than the behavioural change targeted by the road safety campaigns.

The benefit score assigned to information campaigns is +3.

On the cost side information campaigns represent moderate costs to both boaters and government.

The government (or society in form of taxpayers) would bear the costs of the information campaigns, while boaters would bear the cost of the additional safety equipment used after seeing these campaigns. The campaigns are likely to be more costly than the equipment itself, so only a small proportion of the costs would be borne by the beneficiaries (the boaters). The bulk of the costs (the advertising campaign) would be borne by government. This causes equity issues, and hence a lower cost score. The cost score for policy option 1 is -6.

The aggregate score for information campaigns is -3.

The second policy option 2 is to require boaters to bear the full cost of an incident. Notably, boaters would be required to bear their own rescue costs.

Under this policy, the boater has the incentive to carry safety equipment to reduce the time and costs for the search and rescue activities as a result of an incident. It is expected, that a small proportion of boaters will enhance their safety equipment, which might result in decreased search and rescue costs due to recreational boating incidents.

However, this policy would have significant credibility problems and would suffer from the fact that people have difficulty distinguishing very small probabilities from zero, i.e. the risk of being in need of search and rescue services is low and therefore the risk of having to pay for such services is low. In summary, the effectiveness of this option is constrained by the same factor that causes (in part) the "market failure" to occur in the first place so it is unlikely that this options would be effective in increasing the take up of safety equipment. On balance, it seems likely the benefit of this approach would be less than the benefit of the information campaigns approach. The benefit score for policy option 2 is +2.

The cost of the second policy option would be less than the information campaigns by the cost of the campaigns themselves and by the difference in take up between the two schemes.

The cost score for policy option 2 is -1.

The third policy option is to require that boaters carry safety equipment. It is expected that mandatory safety equipment will provide enough incentive for a major proportion of boaters to increase their safety equipment, so it would achieve a larger benefit than the other two options. This is supported by evidence of the effectiveness of mandatory safety equipment provided, for example, after the introduction of bicycle helmets in 1990 in Victoria. Monash University Accident Research Centre estimated a 40 per cent reduction in hospital admission compared to pre-legislation trends, indicating that people (Victorians) increase safety equipment if it is made mandatory.

The benefit score for policy option 3 is +8.

The mandatory approach represents a low to moderate cost to boaters and society. By comparison to the first option, information campaigns, the 'overhead cost' of putting the legislation and enforcement into place would be small compared to the cost of the information campaigns themselves.

Further, the bulk of the cost would be borne by the beneficiaries, the boaters, because those persons would purchase the additional safety equipment required by legislation.

The cost score for policy option 2 is -3.

## Summary

**Table 11.4 – Multi-Criteria Analysis results**

	Policy option 1: information campaign	Policy option 2: Cost exposure	Policy option 3: Requirement of safety equipment
Benefit score	+3	+2	+8
Cost score	-6	-1	-3
Overall score	-3	+1	+5

Table 11.4 shows that the highest benefit will be achieved by pursuing the mandatory approach. The second best option is to expose the boater to the rescue costs incurred due to a recreational boating incident. In this case, the boater has an incentive to carry safety equipment to shorten the search and rescue activities and hence the cost. The third option, the information campaign is not considered to be as beneficial.

*Question: Do you agree with the presentation of the assessment of the pros and cons of these options? If not, why?*

*Importantly, do you agree with the conclusion that the option to mandate safety equipment is the superior to the identified alternatives?*

## 11.6 Expected benefits of the options

As discussed above, safety equipment will typically not prevent marine incidents from occurring. Rather, its purpose is to prevent these incidents from being worse than they might otherwise be. Therefore, conceptually, the benefit of increasing the extent to which the Victorian community uses safety equipment is the loss that would be prevented by doing so.

In other words, the benefits are the avoided costs of incidents that would have been worse.

As discussed in section 11.4, the available data are not sufficient to estimate the size of the avoided costs, so it is not possible to quantify the benefit of the proposed regulations. Rather, the analysis presented here is a break-even analysis. It estimates how much worse outcomes would need to be *without* safety equipment in order that the benefit of mandatory safety equipment is at least equal to the costs imposed. The reader will form their own view as to how likely it is that mandatory safety equipment requirements can deliver this benefit.

With the number of marine safety incidents expected to remain constant<sup>19</sup>, the analysis 'boils down' to asking how many incidents would happen if safety equipment was not mandatory. In the modeling we calculate the 'efficacy rate' that must be achieved so that the benefits of each intervention are at least equal to its costs. Less costly interventions will achieve this balance at lower efficacy rates and vice versa.

In effect, the modeling assumes that, in estimating the benefit of one 'group' of equipment, the other group will work effectively<sup>20</sup>. The only alternative to this would be to model all possible combinations of equipment separately, which would not be possible with the available data.

The result is that we have estimated the benefit of carrying each item of safety equipment individually, but that the benefits cannot be added together (this would amount to saving the same costs twice). The estimated benefit of carrying each item is shown in Table 11.5 below. This calculation relies, in part, on an efficacy rate for each item which was calculated based on a survey conducted at a consultation session in February 2011.

<sup>19</sup> This does not mean that the regulations more broadly cannot reduce the number of incidents. This relates only to the part of the regulations dealing with safety equipment.

<sup>20</sup> The benefits are estimated in a conditional sense, i.e. the benefit of one group of equipment is conditional on the other group being effective.

Table 11.5 – Estimated (conditional) benefit of items of safety equipment

Item	Annual benefits - per vessel	PV of benefits per vessel
<b>Raise the alarm</b>		
EPIRB	\$ 539	\$ 4,637
VHF	\$ 151	\$ 1,304
Mobile	\$ 91	\$ 786
GPS	\$ 181	\$ 1,557
Satellite phone	\$ 98	\$ 843
27MHz	\$ 58	\$ 500
Torch	\$ 23	\$ 202
Red star parachute flare (single)	\$ 37	\$ 316
Smoke signal (pair)	\$ 47	\$ 408
Red flare (pair)	\$ 35	\$ 300
<b>Manage the consequences</b>		
Bucket	\$ 20	\$171
Life ring	\$ 477	\$4,103
Dinghy	\$ 27	\$235
Bailer	\$ 46	\$395
Bilge pump	\$ 77	\$662

Note: This is the present value of the benefits calculated over a ten year period with the same benefit accrued each year (on average). The discount rate is 3.5 per cent.

Data source: ACIL Tasman

## 11.7 Expected costs of the options

The proposed regulations will require that Victorian boaters carry certain safety equipment. The cost of the regulations is the cost of buying (and in some cases maintaining) that equipment.

However, as discussed in section 11.4, the cost of the regulations is not the total cost of the safety equipment that boaters will choose to carry. Rather, in the base case some boaters would choose to operate their boats without the equipment that is required in the regulated case. Therefore, the cost of the regulations is only the cost of safety equipment to that increased proportion.

Notwithstanding this, the cost of the regulations is not modeled in this way. To do so would require a robust estimate of the proportion of boaters who would choose to carry any given item of safety equipment if not legally required to do so. The proposed requirements are similar to those that have been in place in Victoria and other States of Australia for many years. While there are other jurisdictions which do not require mandatory safety equipment, for example in the United States, DOT is not aware of reliable data regarding the extent to which equipment is carried voluntarily.

Analytically, this simplification makes no difference. This is because the benefit of the regulation is reduced by voluntary use of the equipment in question in the same way as the cost. Therefore the ratio between the two is unaffected.

The assumed purchase costs are shown in Table 11.6.

**Table 11.6 – Safety equipment – item by item analysis**

Item	Purchase price	Useful life (years)	PV of 20 year cost	Ratio
<b>Raise the alarm</b>				
EPIRB	\$ 300	10	\$300	15
VHF	\$ 130	10	\$130	10
Mobile	\$ 100	2	\$438	2
GPS	\$ 200	5	\$368	4
Satellite phone	\$ 830	2	\$3,634	0
27MHz	\$ 150	10	\$150	3
Torch	\$ 12	1	\$103	2
Red star parachute flare (single)	\$ 100	3	\$345	1
Smoke signal (pair)	\$ 20	3	\$69	6
Red flare (pair)	\$ 20	3	\$69	4
Compass	\$10	5	\$18	0
<b>Manage the consequences</b>				
Life ring	\$ 75	5	\$ 138	30
Bailer/ bucket	\$ 2	1	\$17	23
Bilge pump	\$ 200	5	\$368	2
Oars	\$ 8	10	\$8	39
Anchor	\$ 150	10	\$150	2
Fire Extinguisher	\$75	3	\$259	2

Note: This is the present value of cost over 10 years calculated at a 3.5% discount rate. It is assumed that the item lasts for its useful life and is then replaced entirely.

Data source: ACIL Tasman

Each item of safety equipment was examined on the condition that equipment from the other group was available and effective.

Given the (conditional) benefits assigned to each item and reported in Table 11.5 ratios were estimated for each item independently as set out in Table 11.6. These are the ratio of the conditional benefits shown in Table 11.5 to the costs shown in Table 11.6. In both cases the present value, calculated over ten years at a discount rate of 3.5 per cent, is used.


The ratios should be interpreted with care. In particular they cannot be added to one another because in calculating the benefit of each item, the item is taken to be the only one in its group available at the time. For example, the benefit of the flares is estimated as if were available on a boat with no other means of raising the alarm. An issue which should be taken into account in selecting safety equipment is the interaction between different items. For example, even after a radio has been used to call for help a flare may be necessary to help a rescuer locate the vessel in distress. Further, the incident itself may damage the radio, for example if the vessel is flooded and the electrical system fails, making a flare more useful than it would be in another case,

The key message to take from the ratios is the size of the ratio for each item compared to others in its group. For example, the EPIRB has the highest ration of the 'raise the alarm' items, indicating that it is considered the most effective item available to achieve this function.

Another observation is that, with some exceptions, the benefit of each item considered outweighs its cost. This lends support to the possibility that any given item on the list could reasonably be mandated, although it does not follow that all items should be.

## 11.8 Summary of the proposed regulations

The previous section, and Table 11.6 in particular, shows that most of the items of safety equipment considered are likely to be beneficial to boaters and that the cost of requiring boaters to carry any one of them is likely to be less than the benefit of doing so.



It does not follow that all of the equipment should be mandated, though, as many of the items perform the same functions. Rather, there are a large number of alternative combinations in which safety equipment could be mandated.

In evaluating these alternatives, the diverse situations in which boats are used and the different risks posed by each should be considered. The risks faced during a tuna fishing trip on the continental shelf off Portland are quite different than those faced while water skiing on Lake Eildon. The risks faced by a keelboat crew engaged in an offshore race are different than those faced by the operator of a personal water craft off St Kilda Beach.

These different risks are reflected in the different safety equipment requirements for different places. The most stringent requirements are for offshore waters. If an incident happens in an offshore environment, it is much less likely that the boat in question will be in sight of a rescuer. Therefore, boats in offshore waters are currently required to carry longer range means of raising the alarm, such as an EPIRB, marine radio and parachute flare. On other waters these items are optional, reflecting the greater likelihood that the alarm could be raised by visual means. By contrast, an anchor is a mandatory piece of equipment in all locations, reflecting the importance of being able to remain in place if an incident occurs. Indeed, in inland waters simply staying anchored in one place would be sufficient to attract assistance in some cases.

For the most part the required safety equipment does not vary by type of boat (the quantity varies in some cases). This reflects the fact that the risk is presented by the location and the activity being pursued rather than the boat itself. For example, in vessels which are sufficiently large to be able to cross a sandbar safely, the danger inherent in doing so cannot be ameliorated by using a larger rather than a smaller boat. The danger is posed by the activity itself.

This also reflects the fact that the activity being pursued defines the appropriate boat in many cases, for example, while some boats have multiple uses, many boats which would be quite suitable for towing water skiers on a lake would be out of place on Bass Strait.

The current requirements reflect the accumulated wisdom of many years experience, in Victoria and elsewhere, regarding the equipment that is likely to be important in an emergency situation. Marine incidents are diverse, though, and in hindsight it is sometimes noticed that a particular item of equipment would have been instrumental in preventing a particular incident from ending the way that it did. It does not necessarily follow from this that these items should be made compulsory, although there are strong arguments in favour of publicising these insights to encourage boaters to take up the items in question.

It is also noted that the system in place at the moment appears to be working well. Bearing in mind that safety equipment will not prevent incidents from happening, but will only improve the outcome, it is helpful to consider the proportion of incidents which end 'badly', i.e. in injury or worse, compared to the proportion which end 'well'. As shown in Table 11.3 above, the proportion of incidents that end 'badly' has been very small, less than one per cent.

This suggests that the current system should not be changed fundamentally. In line with this, the proposed regulations retain the existing mandatory safety equipment, although some flexibility is introduced to allow for the substitution of laser flares for traditional pyrotechnic (red) flares and to allow a GPS to be carried in place of a compass.

The proposed regulations would require that recreational boaters carry the safety equipment listed in Table 11.7 below. With a few exceptions this amounts to continuing with the existing regulations.

**Table 11.7 – Proposed mandatory safety equipment**

Item	Offshore	Inshore	Enclosed	Inland	PWC
EPIRB	yes	no	no	no	no
Marine radio	yes	no	no	no	no
Buoyant waterproof torch	yes	yes	yes	yes	yes
Red star parachute flare (single)	yes	no	no	no	no
Signal (pair)	yes	yes	yes	no	no
Red flare (pair) or laser flare	yes	yes	yes	no	no
Bucket	no	no	no	no	no
Life ring	yes	yes	yes	yes	no
PFD	Yes	Yes	Yes	Yes	Yes
Dinghy	no	no	no	no	no
Bailer/ bucket/ bilge pump	yes	yes	yes	yes	no
Oars	no	If shorter than 4.8m			no
Anchor	yes	yes	yes	yes	no
Fire extinguisher	yes	yes	yes	yes	yes
Compass or GPS	yes	no	no	no	no

Note: a description of each item and its function is provided in section 11.1 above.

As discussed above, a break even analysis has been conducted. This analysis is summarised in Table 11.8. No prediction has been made as to the extent to which mandatory safety equipment reduces the number and severity of relevant incidents. Rather, Table 11.8 shows estimates of the number of incidents which must be prevented by mandatory safety equipment in order that the benefit outweighs the cost.

**Table 11.8 – Proposed regulations – break even analysis**

Basket	Costs			Break even		Reported disablements (annual average)
	Cost per boat	# Boats affected (% of fleet) <sup>21</sup>	Fleet wide cost	Lives saved	Incidents prevented	
Offshore	\$1,975	16663 (10%)	\$32,912,467	1	3	41
Inshore	\$1,305	49989 (30%)	\$65,234,332	2	6	24
Enclosed	\$1,300	56654 (34%)	\$73,666,800	2	7.0	783
Inland	\$1,024	33326 (20%)	\$34,137,692	1	3	13
PWC	\$367	10038 (6%)	\$3,685,288	0.1	0.3	20
<b>Total</b>	<b>\$1,258</b>	<b>166669 (100%)</b>	<b>\$209,636,578</b>	<b>6</b>	<b>20</b>	<b>883</b>

Note: totals may not add due to rounding.

Note: the total number of disablements reported here varies slightly from the total reported above reflecting the fact that some disablement records do not contain detail as to the type of waters where they occurred.

The fifth and sixth columns of Table 11.8 show the results. They show, for example, that, given the cost assumptions applied in the modeling, the costs of the mandatory safety equipment for offshore waters will equal the benefit of requiring this equipment to be carried if it causes slightly less than one life to be saved every year (on average). Alternatively, the benefit equals the costs if 3.2 serious incidents are prevented each year through the carriage of this safety equipment<sup>22</sup>.

To put these in context, the seventh column of Table 11.8 shows the number of disablements which have been reported in each environ or operational circumstance. These are disablements that have necessitated rescue by the Water Police or organisations like the Australian Volunteer Coast Guard. The question being posed is whether it is reasonable to expect injury or deaths to result from such disablements if safety equipment had not been available to raise the alarm and preserve life until rescue services arrived.

<sup>21</sup> DoT estimates based on MUARC exposure data (regarding location of incidents).

<sup>22</sup> These columns are not additive. In other words, the benefit cost ratio would be one if *either* the requisite number of lives is saved or the requisite number of (average) incidents is prevented.

In total, the mandatory safety equipment will return more benefits than costs if it either prevents the loss of six lives or prevents 20 serious incidents from happening each year (on average). So if the mandatory requirement for safety can be taken to prevent 6 fatalities occurring from among the almost 900 disablements which occur each year (slightly more than one half of one per cent) then the costs of the regime are likely to outweigh the benefits.

DOT believes it is reasonable to expect that if the alarm was not raised, and rescue services did not arrive, approximately 1% of vessel disablements would have resulted in death. e.g. conditions deteriorate, vessel capsizes, users end up in the water and if not saved quickly enough they drown. Historically (as discussed in Chapter 10), this is the most common cause of boating related deaths.

*Question: Do you agree with the DOT judgement that it is reasonable to expect that 1 in 150 vessel disablements requiring rescue services would have resulted in death(s) if there was no safety equipment available to raise the alarm and preserve life while awaiting rescue? If not, why?*

*Question: Do you support the continuation of the legal requirement to carry safety equipment?*

An aspect of the proposed regulations which differs from the status quo is that flexibility is afforded in some areas. In particular, boaters will be able to choose a hand-held strobe or laser flare in place of the red flare when it is required at the moment. Similarly, boaters in offshore waters will be able to carry a GPS instead of a compass.

At the same time, some changes that were suggested have not been taken up. Most notably, the suggestion that only a VHF radio should be acceptable as a marine radio.

These issues are discussed below.

#### **11.8.1 Red flare vs strobe or laser flare**

There are a number of potential advantages to a strobe or laser flare over a traditional red flare. The first and most obvious advantage is that the traditional flare has a burn time of one minute, while the alternatives can 'burn' for many hours. Another advantage is as a pyrotechnic device, the traditional red flare is an inherently dangerous thing, whereas the alternatives are less so.

On the other hand, the strobe and laser flares are battery powered devices and, as such, are prone to battery failures, which is not possible with a red flare. The alternatives are also significantly more expensive than the red flare to purchase, although they may not need to be replaced as frequently, reducing the lifetime cost. Further, if demand increases due to the change in regulations, the price may fall.

On balance, the case in favour of alternatives to the red flare is sufficiently strong to take the view that they should be regarded as options for the red flare, but there appears to be little reason to disallow the red flare.

#### **11.8.2 GPS v compass**

Another area of flexibility that is proposed is that boaters in offshore waters will be able to choose between carrying a GPS and a compass.

These two items are both mainly used for navigation. In an emergency situation their main function is likely to be to advise a rescuer of the location of the boat in distress. A GPS can typically be used to do this directly, by providing latitude and longitude coordinates. A compass can give location information, although in a less direct way, by providing the bearing from the vessel to landmarks. Rescuers could then narrow down the location by triangulation.

Another important function of both items is that they can help to guide a lost vessel home, thus preventing what might otherwise become a serious incident.

The clear advantage of a compass over a GPS in an emergency situation is that it is a simple, self contained device. While there are any number of compasses on the market there is little variation in the basic functionality of the devices. A person who knows how to use a compass to take a bearing is very likely to be able to do so with any compass they are handed, whether they have used that make and model before or not. Further, a compass is not electrically powered and will typically work while submerged. These things cannot necessarily be said of a GPS.



Modern GPS systems are quite complicated computerised devices. There are many different models of GPS on the market and each has different functions and different menu structures. Therefore, a person who is familiar with one model of GPS will not necessarily be able to operate another, although simple functionality such as identifying a position is usually simple. More importantly, though, in contrast with a compass, a GPS will not work at all if its batteries are flat or if the boat's electrical system is flooded and fails.

Offsetting these disadvantages, a GPS has a key advantage over a compass. While operating a compass is relatively simple, using it to identify one's location is only possible if a fixed landmark can be both seen and identified. In an offshore environment, land might not be in sight or, even if it is, it may not be sufficiently clear to allow a landmark to be identified. If one landmark is mistaken for another the compass bearing will lead to the wrong position. If no landmark can be seen a compass would be no help at all in providing a location.

By contrast, a GPS needs only be in 'sight' of the satellites with which it communicates to provide a location. As long as the GPS has satellite coverage, which is no less strong in offshore waters than closer to shore, the location will be provided.

Offsetting this, of course, is the fact that a GPS is a more expensive piece of equipment than a compass, especially when the lifecycle cost is considered given that compasses have few moving parts and tend to last for a long time.

On balance, the case for allowing a GPS to be used as an alternative for a compass in offshore waters appears strong. However, as with the red flares discussed above, there is no particular case against allowing a compass. Therefore, boaters will be able to choose whichever they feel best suits their needs.

*Question: Do you support the option to allow for substitutes that provide equivalent safety functions? If not, Why?*

*Question: Do you support this type of deregulation? If so, are there any pieces of safety equipment for which you think equivalents should be permitted?*

### 11.8.3 Marine radio – 27MHz v VHF

Under the current regulations boaters can already choose the type of marine radio they carry. While there is no direct data as to which choice people make, the Australian volunteer Coast Guard has advised that it handles approximately the same amount of radio traffic on the 27MHz band as it does on VHF. This varies by location, with the Coastguard stations at Queenscliff and Portland handling more VHF traffic while the other stations, in particular Sandringham, handle more 27 MHz traffic. This indicates that a significant portion of the boating public chooses to use both systems, although boaters on the ocean (as distinct from Port Phillip Bay in particular) seem to favour VHF over 27MHz. This is not necessarily the same as saying that offshore boaters favour VHF over 27MHz but, given that the whole of Port Phillip Bay is inshore, it is close to the same thing<sup>23</sup>.

If the regulations were changed so that a VHF radio was required while operating in offshore waters it is possible, although not certain, that use of VHF would increase and use of 27MHz would decline. The Australian Communications and Media Authority recently published a discussion paper on a related issue<sup>24</sup>. In response to that discussion paper a number of submitters argued that this would reduce the effectiveness of the VHF band as a safety tool because it would be increasingly difficult for a caller to make themselves heard if the level of 'chatter' on the VHF band increased. There are also concerns that this increased 'chatter' would cause some boaters to turn their radios off, further reducing the safety impact by reducing the size and reach of the network.

The argument in favour of requiring VHF instead of 27MHz is that the range is longer. However both are fundamentally line of sight technologies, so this is not as strong an argument as it may seem. The real benefit is likely to be limited to VHF being more reliable in deteriorating conditions when compared with 27MHz.

On balance, the proposal is that the choice of radio type in the current arrangements should be preserved.

*Question: Do you believe that 27Mhz should continue to be permitted as a marine radio? If not, why?*

*Question: Are there any other pieces of safety equipment that are currently required that you have concerns about?*

<sup>23</sup> A significant portion of Port Phillip Bay is more than 2 nautical miles from shore, however the whole bay is defined as inshore waters nonetheless.

<sup>24</sup> The key issue was whether operators of marine VHF radios should continue to be licensed or whether that requirement should be relaxed. See [http://www.acma.gov.au/WEB/STANDARD/pc=PC\\_312390](http://www.acma.gov.au/WEB/STANDARD/pc=PC_312390)



## 12. Compliance and enforcement

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### 12.1 Current requirements


Primary responsibility for enforcement of Victoria's marine safety laws lies with Transport Safety Victoria (TSV). In practice however, Victoria Police undertake the majority of enforcement activity, supported by port management bodies, local port managers and waterway managers. TSV currently provide Victoria Police with \$1 million p.a. in funding for enforcement of marine safety laws.

The new Act and proposed Regulations will be supported by an enforcement regime substantially the same as that which supports current laws, comprising powers set out in Chapter 4 of the new Act, Part VII Division 4B of the *Transport (Compliance and Miscellaneous) Act 1983* (TCMA), Part 7 Division 1 of the *Transport Integration Act 2010* (TIA) and relevant provisions of the proposed Regulations.

Chapter 4 of the new Act re-enacts the enforcement powers and mechanisms which were previously contained in the *Marine Act 1988*. These include powers to issue embargo notices, improvement notices, prohibition notices, seize and impound recreational vessels, issue infringement notices and other general enforcement powers. Powers which enable individual enforcement officers to enter vessels, inspect vessels, require names and addresses to be given, etc., have been re-enacted through amendment to the powers set out in Part VII, Division 4B of the TCMA.

The *Marine Act 1988* and the *Marine Regulations 2009* provide for TSV to suspend or cancel various types of permissions, such as licences, certificates and registrations, as a sanction or in response to changing circumstances. Part 4.6 of the new Act provides for the taking of such disciplinary action in a uniform way across all the different types of permissions. The effect of this reform is to make clear and consistent the circumstances which give TSV the right to consider taking disciplinary action and the procedures that must be followed.

In addition to re-enacting current enforcement powers and mechanisms, the new Act introduces two new key enforcement initiatives. The first of these is an owner onus scheme for speed and zone offences, which addresses the difficulty of identifying the operator of a vessel from the shore. The application of owner onus in the marine sector is expected to be an important reform in maximising the efficacy of limited compliance monitoring and enforcement resources. The second enforcement initiative introduced by the new Act is the requirement that TSV prepare, implement and maintain a State-wide marine enforcement policy, developed in partnership with the Water Police, port management bodies, local port managers and waterway managers. Although applying the same set of rules, these agencies currently set their own policies and priorities and apply their own varying approaches to enforcement. This inconsistency sends confused signals to the boating public and generally detracts from deterrence. A State-wide enforcement policy will set clear expectations and priorities for consistent and coordinated enforcement across the State.



While the majority of enforcement powers and procedures are contained in the new Act and other principal statutes, the proposed Regulations will provide a key plank in this regime by prescribing particular offences as marine infringements, which are enforceable by infringement notice. This will continue the infringements scheme that currently supports enforcement of the *Marine Act 1988* and regulations. Currently, marine infringements include:

- › offences against licensing and registration requirements;
- › speed, zone and waterway rule offences;
- › offences of failing to report incidents;
- › operational offences, such as overloading;
- › blood alcohol offences;
- › offences against commercial certification requirements;
- › offences against safety equipment requirements; and
- › offences against PFD-wearing requirements.

The use of infringement notices in enforcement has a number of significant advantages. Infringement notices provide an effective and efficient deterrent to contravening rules, while also offering an alleged offender the opportunity to minimise the penalty and burden incurred through contravention and court proceedings. However, for a variety of reasons, not all offences are suitable for enforcement this way. The use of infringement notices is regulated by the *Infringements Act 2006*. The *Attorney-General's Guidelines to the Infringement Act 2006* (A-G's Guidelines) provides guidance as to the types of offences that may be suitable or unsuitable for this means of enforcement. Additionally, prescribing an offence as enforceable by infringement notice may not align with the objectives of the authorising Act, even if it is otherwise suitable.

The new Act and the proposed Regulations create a significant number of offences. However, only some have been proposed for prescribing as marine infringements. This Chapter of the RIS discusses which offences have been proposed for prescribing as marine infringements, the penalties that have been applied, and the considerations on which these proposed Regulations are based.

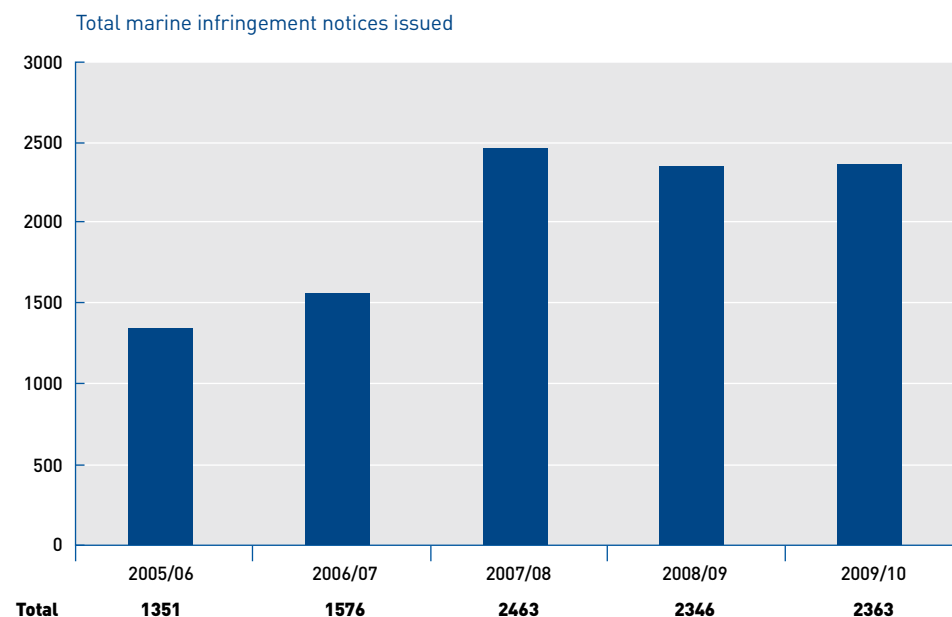
## 12.2 Nature and extent of the problem

Unlike other Chapters of this RIS, the provisions discussed here are not aimed at addressing a market failure. Enforcement is not an intervention in itself, but is one of a number of mechanisms for achieving compliance. The efficacy of specific problem-oriented interventions, such as speed restrictions or capacity limits, is largely dependant on compliance. As such, the problem that the proposed regulations referred to in this Chapter of the RIS are aimed at addressing is compliance with marine safety laws.

### 12.2.1 Compliance with marine safety laws

There is a relative lack of data on which to base a meaningful analysis of compliance with marine safety laws. The most useful data of this nature is the number of infringement notices served by Victoria Police for marine infringements (marine infringement notices). Victoria Police is only one of a number of agencies which enforce marine safety laws, but issue the great bulk of marine infringement notices (+95%). The number of marine infringement notices issued by the Police from 2005/6 to 2009/10 is set out in Figure 12.1 below:


**Figure 12.1 – Total marine infringement notices issued**



**Table 12.2 – Below sets out the number of infringement notices issued for the 20 most commonly detected infringeable offences:**

Offence	2005/06	2006/07	2007/08	2008/09	2009/10	Total
Fail to wear pfd in open area of vessel under 4.8M	88	237	409	311	341	1386
Fail to carry orange smoke signals	80	110	223	245	259	917
Operate unregistered vessel	125	109	178	218	214	844
Operate vessel without or contrary to licence	161	104	152	199	178	794
Fail to carry waterproof bouyant torch	89	155	206	155	169	774
Exceed 5kn within 200m of restricted area	51	86	90	94	112	433
Fail to carry required number of fire extinguishers	84	57	101	88	95	425
Operate PWC without or contrary to licence	70	71	97	92	89	419
Fail to carry appropriate number of PFDs	79	57	79	106	89	410
No licence in possession	84	54	57	100	105	400
Reg. Label not in conspicuous position	57	63	81	76	80	357
Exceed waterway speed limit	57	29	71	75	95	327
Fail to carry hand-held red flares	35	49	95	86	48	313
Fail to carry cert etc – Operating vessel	11	55	89	63	83	301
Exceed 5 knots within 50m of a vessel	36	43	52	63	71	265
Vessel anchored in navigation channel	50	47	60	52	42	251
Operate vessel in prohibited area	18	35	44	54	46	197
Identification mark not displayed	27	25	39	51	48	190
Fail to maintain fire extinguisher	12	16	31	21	25	105

While this data is useful, it has a number of significant limitations. Firstly, it does not account for either enforcement effort or on-water boating hours. Therefore, while the number of marine infringement notices issued for a particular offence indicates detected incidents of non-compliance, it does not necessarily provide an indication of compliance. Neither does it provide any indication of undetected non-compliance.



For example, high numbers of infringement notices have been issued for failing to carry orange smoke signals and failing to carry a waterproof torch. By contrast, there have been very few infringement notices issued for failing to carry a marine radio or a compass. This might be interpreted as indicating a high level of compliance with the latter requirements and a low level with the former. However, that interpretation would be simplistic, for a number of reasons. The requirements to carry a marine radio and a compass apply to vessels operating more than 2 nautical miles from the coast (offshore), while the requirement to carry orange smoke signals applies to vessels operating on offshore, coastal inshore and enclosed waters, and the requirement to carry a waterproof torch applies to vessels operating on all waters. Given the limited resources available for enforcement of marine safety law, it is reasonable to assume that less effort is devoted to offshore enforcement. Therefore, there may be a higher level of undetected non-compliance with safety equipment requirements for offshore waters than for enclosed or inland waters, though this is speculative. Additionally, research indicates that approximately only 10% of trips are offshore, while 35% are on enclosed waters and 55% on inland waters. Therefore it might be speculated that there is a high rate of compliance with safety equipment requirements for enclosed and inland waters,<sup>25</sup> despite the relatively high number of detected incidents of non-compliance.

A second limitation in interpreting the infringement data is that there is anecdotal evidence from enforcement officers that infringement notices are often issued for low-level offences where the trigger for apprehending the person was actually observation of a more serious offence being committed, such as careless operation. However, if the more serious offence has a higher evidentiary burden, or can only be prosecuted through the court system, the low administrative burden entailed in issuing an infringement notice for a strict liability offence may be a preferable option, assuming non-compliance is detected. This is particularly relevant considering the relatively low resourcing of marine safety law enforcement.

In light of these limitations, few meaningful conclusions about the level of compliance with marine safety laws or the nature of non-compliance can be drawn. However, it is clear that a significant level of non-compliance persists and that key requirements, such as licensing and registration, wearing PFDs and carrying safety equipment, are amongst those with which non-compliance is most commonly detected.

## 12.3 Objectives of the proposed regulations

Along with the other enforcement measures discussed above, the primary objective of the proposed Regulations discussed in this Chapter of the RIS is to achieve compliance. It would be pointless to impose regulation without a level of confidence that it will be complied with. Effective enforcement facilitates compliance by providing deterrence.

However, it is not desirable that compliance at any cost be sought. If the cost of achieving full compliance with a regulatory measure is too high, either for the regulator or the regulated, it is likely to outweigh the realisable benefits and result in inefficient allocation of resources. It is therefore critical that compliance measures such as enforcement are cost effective.

As discussed earlier, the new Act introduces a number of initiatives, such as owner onus, intended to maximise enforcement efficiency. The proposed Regulations aim to complement these initiatives by providing for effective and efficient enforcement through the use of infringement notices.

## 12.4 Identification of feasible options

The new Act and the proposed Regulations create a significant number of offences. Additionally, the new Act provides that offences against the *Port Services (Local Ports) Regulations 2004 (PSLPR)* may be prescribed as marine infringements. Notionally, it might be possible to prescribe all of these offences as marine infringements. In reality however, not all are likely to be suitable.

The starting point for consideration of the suitability of specific offences for enforcement through infringement notice is the A-G's Guidelines, which sets out a two stage process for determining the necessity and suitability of an offence for enforcement by infringement notice. Technical Paper 12 provides an overview of the two stage process and the criteria which are applied.

Many of the offences created by the new Act and the proposed Regulations are substantially the same as existing offences under the current Act and Regulations. The suitability or otherwise of these offences for enforcement by infringement notice has been assessed twice, initially during the development of the *Marine Regulations 1999* and subsequently during the re-making of those regulations in 2009. The latter assessment involved consideration of the A-G's Guidelines and consultation with the Department of Justice.

<sup>25</sup> Powered Recreational Boating Exposure to Risk Survey: October 2008 to September 2009.

These offences are not dissimilar to road rules for boating and establish basic safety obligations intended to ensure that:

- boaters obtain the necessary permissions to operate;
- vessels and their masters can be identified;
- vessels are operated so as to minimise risks to their operators, passengers and other waterway users; and
- appropriate safety equipment is carried to mitigate the consequences of incidents.

Compliance with these obligations is extremely important. However, in many instances of non-compliance, neither prosecution through the courts nor the maximum available penalty is likely to be appropriate or efficient. This process and level of sanction are appropriate for flagrant or repeated offending. Low-level offending, resulting from factors such as ignorance or inexperience, does require sanction, but may often warrant a less burdensome process and a lower penalty. In these cases, an infringement notice may be the most appropriate penalty, as it balances the need to deter and sanction less serious offending with efficient enforcement.

While the majority of current marine infringements would be continued by the proposed Regulations, a number would not, due to the substantive offences not being continued.

In addition to those existing marine infringements that have been retained, new marine infringements have been considered in three key areas: the wearing of PFDs during times of “heightened risk”; offences against the Prevention of Collisions Convention and offences against *Port Services (Local Ports) Regulations 2004 (PSLPR)*.

Currently, it is an offence not to wear a PFD on an open area of a vessel of greater than 4.8 metres in length in circumstances defined as a time of “heightened risk”. This offence is set out in regulation 232 of the current Regulations. As currently defined, “time of heightened risk” contains some circumstances that are inherently subjective. The offence is therefore not suitable for enforcement by infringement notice, due to the lack of clarity regarding what constitutes offending behaviour. However, due to the low maximum penalty of 5 penalty units and high evidentiary burden, prosecution through the courts is not an efficient enforcement mechanism either. While the offence in its current form serves as a salient safety message, its effectiveness as an enforcement tool is undermined by the lack of real deterrence.


An option considered and ultimately endorsed in the development of the proposed regulations has been to amend the offence to make it suitable for enforcement by infringement notice and prescribe it as a marine infringement. The offence has been amended to clarify what constitutes offending conduct. For example, the current regulation requires a person on an open area of a vessel greater than 4.8 metres in length to wear a PFD when there is a significant likelihood that:

- the vessel may be capsized or swamped; or
- the occupants of the vessel may fall overboard or be forced to enter the water.

These circumstances are inherently subjective and hence so too is offending conduct. An offence against this provision is therefore not suitable for enforcement by infringement notice. To make the offence suitable for infringement notice, only those circumstances which are objectively certain have been retained.

The second key area where consideration of new marine infringements has been undertaken is the prescribing of specific offences against the COLREGS by masters of recreational vessels, hire and drive vessels and government vessels. Under the current Act, breaches of the COLREGS are not infringeable and are liable to a maximum penalty of 100 penalty units (\$12,000) or 2 years imprisonment. While such a severe penalty is appropriate to commercial vessel operations, which have a high risk profile, it is less so to non-commercial boating. For this reason, enforcement agencies have been reluctant to prosecute recreational boaters for failing to comply with basic requirements such as displaying navigation lights. However, the high penalty level also makes the offence unsuitable for enforcement by infringement notice. The combination of these two factors greatly undermines the offence’s deterrent effect and there is anecdotal evidence of a high level of non-compliance.

In response to this, the new Act provides for differing penalty levels and enforcement mechanisms for breaches of the COLREGS, depending on whether the breach involves a commercial or a recreational vessel. Breaches involving commercial vessels remain subject to a high penalty of 120 penalty units (\$14,000), though imprisonment is no longer a sentencing option. This offence remains not enforceable by infringement notice and must be prosecuted through the courts. In contrast, the maximum penalty for a breach of the COLREGS involving a recreational vessel has been lowered to 20 penalty units (\$2400). Additionally, the proposed Regulations would create offences for breaches of specific provisions of the COLREGS by masters of recreational vessels for the purpose of enforcement by infringement notice. Offences of failing to display



navigation lights or failing to comply with give-way rules will be prescribed for these purposes, providing an effective deterrent that is currently lacking.

The third key area where new marine infringements have been considered is the enforcement of offences under the PSLPR. The PSLPR create a variety of offences relating to activities in local ports, including:

- › mooring and berthing of vessels;
- › camping on local port land without a permit;
- › engaging in prohibited activities, such as swimming where not permitted; and
- › interfering with port facilities, property or navigation aids.

These offences have existed since 2004. However, due to not being enforceable by infringement notice, their deterrent effect has been undermined and low levels of compliance have been reported. The proposed Regulations would prescribe these offences as marine infringements, which will enable more cost effective enforcement and improve their deterrent effect.

Feasible alternatives to the proposed Regulations range from the base case of no regulations across various different selections of marine infringements. DOT's assessment is that the marine infringements which would be prescribed by the proposed Regulations are the most appropriate selection of offences for that purpose. These are offences where enforcement by infringement notice provides an effective and efficient deterrent without undermining the seriousness of the offending conduct.

## 12.5 Penalties

Determining an appropriate penalty level is a key aspect of ensuring that an infringement offence provides an effective deterrent while also offering an alleged offender a "bargain". The benefits of enforcement through infringement notice are unlikely to be realized if the penalty is not discounted sufficiently to provide an incentive to comply, rather than challenge the notice. However, penalties must not be discounted so much as to undermine deterrence.

The A-G's guidelines stipulate that an infringement penalty should not exceed 25% of the maximum available court imposed penalty. The proposed Regulations apply this as an upper limit on infringement penalty levels. However, in a number of areas, infringement penalties are significantly lower than this. The reason for this is that rather than impose the maximum available infringement penalty for a particular offence, the proposed Regulations seek to create bands of infringement offences of similar seriousness and impose penalties appropriate to the band.

For example, compliance with licensing and registration requirements is a basic cornerstone of effective enforcement. The proposed Regulations would impose an infringement penalty of 5 penalty units (\$600) for all registration and licensing offences. While this equates to 25% of the maximum penalty for operating unlicensed, it is less than 10% of the maximum penalty for operating an unregistered vessel. For the purposes of consistency, the infringement penalties for these two groups of offences would be aligned under the proposed Regulations.

A further example of this approach is the offence of failing to carry required items of safety equipment. The maximum court imposed penalty for this offence would be 20 penalty units (\$2,400), which reflects the safety criticality of some of the required items, such as EPIRBs. Simply imposing a 75% discount would result in an infringement penalty of 5 penalty units (\$600). However, while this might be appropriate for some items of equipment, it would be disproportionately high for others. For example, while bailers and buckets with lanyards are important, they are less safety critical than a marine radio or a PFD. DOT believes that it is appropriate that failing to carry the latter items attracts a higher penalty than failing to carry the former. Effectively, the proposed Regulations would create three tiers of safety equipment. Failure to carry items in the first tier, such as PFDs, would attract the highest infringement penalty of 5 penalty units (\$600). Failure to carry items in the second tier, such as a marine radio, would attract an infringement penalty of 2.5 penalty units (\$300), while failure to carry items in the third tier, such as a bucket with a lanyard, would attract an infringement penalty of 1.25 penalty units (\$150).

This approach is employed across the range of marine infringements prescribed in the proposed Regulations.



## 12.6 Assessment of benefits and costs of options

It has not proved possible to undertake a quantitative analysis of the benefits and costs of those parts of the proposed Regulations that this Chapter of the RIS discusses. Due to lack of data, it would be entirely speculative to attempt to quantify the benefits or costs of the feasible options. However, on a qualitative basis, it can confidently be said that an enforcement regime which makes appropriate use of infringement notices is more likely to result in an optimal level of compliance and efficient allocation of resources than one that does not.

The primary advantage of infringement notices as an enforcement tool is that they minimise both enforcement and compliance costs. The infringements scheme is often described as an administrative “bargain” – an offender trades the right to a trial for a fixed but significantly discounted monetary penalty, while the enforcement agency avoids the cost of a trial. This allows limited enforcement resources to be allocated to where they are most needed without compromising deterrence. Similarly, regulated parties are provided with a greater level of certainty regarding the likely consequences and costs of offending.

By contrast, if the only available enforcement mechanism for an offence is prosecution through the courts, the incentive to comply is likely to be undermined. Regulated parties might be encouraged to run the gauntlet of offending, knowing that the costs of prosecuting will often either outweigh the benefits, or drain resources better utilised for active compliance monitoring. This is particularly pertinent to offences where the maximum penalty a court may impose is low. In these circumstances, the lack of enforceability by infringement notice is likely to undermine deterrence. Therefore, achieving the same rate of compliance is likely to cost significantly more without the use of infringement notices.

It should also be noted that no additional resources are required for the administration of the marine infringements system beyond what are already dedicated. The processing of marine infringements is undertaken through the State-wide VIMS system administered by the Department of Justice, which handles the great majority of infringement notices issued in Victoria. Implementation costs of the proposed Regulations are therefore likely to be low.

In summary, by prescribing marine infringements, the proposed Regulations would:

- provide an objective deterrent; and
- minimise compliance, enforcement and implementation costs.

## 12.7 Conclusions

As set out above, it has not been possible to undertake a quantitative analysis of the benefits and costs of the proposed Regulations, due to data limitations. Nonetheless, it is reasonable to conclude that the benefits of the proposed Regulations would outweigh the costs, by enhancing the efficiency and effectiveness of enforcement. Effective and efficient enforcement is critical to achieving compliance, which in turn is critical to achieving the objectives of the remainder of the proposed Regulations.



## 13. Management of waterways

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The *Marine Safety Act 2010* has codified the process of making waterway rules. The aim of the codification of the process is to improve transparency and provide assurance to the many members of the community potentially affected by the making of waterway rules. It guarantees that when new rules are proposed, community members will have an opportunity to have their say. This is important change but not necessarily a significant one given that administrative guidelines are already in place which require public consultation and consideration of the type of matters now specified in Chapter 5, Part 5.1 of the new Act.

The more substantive change is that for the purpose of facilitating water based events, port and waterway managers now have the power to establish exclusion zones. Similarly port and waterway managers have been given the power to establish:

- › exclusion zones and otherwise regulate traffic on their waterways for the purpose of safely facilitating the undertaking of works over, under or on the water; and
- › exclusion zones and give directions for the purpose of managing emergency situations.

These powers are not presently provided and this represents a gap in the powers which port and waterway managers have at their disposal to safely manage the waters under their control. This gap in powers has been addressed by the new Act (refer to Part 5.3).

### 13.1 Nature and extent of the problem

Under the new Act the Safety Director has the power to oversight the granting of exemptions and the making of exclusion zones. This provides a check and balance on the rule making and exemption powers given to port management bodies, local port managers and waterway managers. .

Powers to grant exemptions and establish exclusions zones are often used for the purpose of facilitating water based events. For example, the use of the Yarra River in Melbourne for the Moomba festival is an event which is facilitated using the exemptions granting powers of the waterway manager (Parks Victoria) and the rule making power of the Safety Director (on recommendation from Parks Victoria).

The new Act requires port management bodies, local port managers and waterway managers to consult with the Safety Director before granting an exemption or establishing an exclusion zone for the purpose of facilitating such an event. Furthermore, it gives the Safety Director the right to effectively veto or vary any exemption or exclusion zone proposal if the Safety Director has safety concerns.

The need for such oversight and control has already been considered, and the Victorian Parliament has determined that such controls on the exercise of regulatory powers are appropriate. However, the potential problem is that this creates a level of uncertainty which, if not addressed, may impede or frustrate planning for events. Given that such events can often involve significant resources there is a community interest in limiting the uncertainty so far as possible, while maintaining the safeguards that have been established.

The Act envisages that the mechanism for limiting uncertainty is to limit the timeframe the Safety Director has to oppose an exemption or exclusion zone or otherwise direct amendments to the terms and conditions of the proposed exemption or exclusion zone.

The Act envisages a further check and balance on the power of port management bodies, local port managers and waterway managers to establish exclusion zones, which is to limit the time period over which the exclusion zone may be put in place. This control is necessary to avoid potentially quite valuable and popular parts of State waters being made inaccessible for long periods of time without the exclusion zone being subject to review.

## 13.2 Objectives of the proposed regulations

The objective of the proposed regulations is to provide transparency and reduce uncertainty, so that people can have their say and plan appropriately for events. A further objective is to ensure that waterway users are not unduly prohibited from accessing parts of State waters.

## 13.3 The base case

The Victorian Guide to Regulation requires that for new regulations or for regulations that are sunsetting, RIS should assume “zero” or no regulations as being the base case against which the proposed regulations and feasible alternatives should be assessed.

In this case the adoption of zero base case would imply that:

- › the Safety Director does not need to make hard copies of proposed rules and urgent safety rules available for inspection;
- › there is no limit on how long the Safety Director may take to determine whether he or she has any concerns about proposals to grant exemptions or establish exclusion zones; and
- › there is no limit on the period an exclusion zone can be applied to a part of State waters.

## 13.4 Identification and evaluation of feasible options

### 13.4.1 Locations where hard copies of rules can be made accessible

Clearly there are numerous options available to make rules including urgent safety rules, available in hard form to enable inspection by interested parties. Council offices, public libraries and State government department offices all over the State are potential candidates. The main party affected by these regulations is the Safety Director and accordingly there has been good reason to closely consult with the Safety Director on the locations that may be jointly convenient to the Safety Director and highly accessible to the general public.

Information Victoria has been identified as the most suitable candidate. It has an office which is accessible to the public and has been explicitly set up for this purpose. As such, those wishing to seek out and inspect such rules will be given the support that may need to find it. Alternatives such as council offices or the offices of Government Departments (including DOT) are not set up to provide such support. Libraries do provide such support, and accordingly, the State Library is considered to be the next most viable alternative.

### 13.4.2 Maximum time period for Safety Director to make comment or give direction

The maximum time period for the Safety Director to make comment on exemptions and exclusion zone proposals needs to be sufficient to enable appropriate considerations to be made, but cannot be so long that it deters those wishing to run events from doing so. There is no one timeframe that will suit all foreseeable circumstances. In some cases urgent action will be needed and adherence to rigid timeframes would fail to facilitate the event. However, as is presently the case, the Safety Director is able to make a decision and endorse proposals for events in positive terms without waiting for the prescribed period to expire. The prescribed period is a maximum, and thus, needs to be set with some judgement regarding what constitutes a reasonable period of consideration for the Safety Director.

Because of the limited resourcing of the unit in TSV that oversees waterway management, it is foreseeable that short-term demand for these functions (e.g. multiple audits in North west Victoria in one week) would result in an advice received from a waterway manager on a proposed exemption and/or exclusion zone not being able to be considered if the maximum period specified was only 5 business days. 5 business days is therefore considered insufficient to ensure effective oversight of these application by the Safety Director – which is clearly the intent of the Act.

Previously, 21 days had been specified in the Safety Director’s guideline regarding how much time should be afforded to the Safety Director to consider proposed exemptions before they are granted. The extent of this time period has been criticised by event organisers and waterway managers as being too long in light of the practical realities of the management of some events. There is a demand therefore to minimise this time so far as is possible.

The compromise proposed is 10 business days. This should ensure that the Safety Director (even with limited resources) has the capacity to effectively oversight the granting of exemptions and the making of exclusion zones. It is also not unreasonable for events organised (and water managers wishing to facilitate such events) to wait a maximum of 10 days before organisers knowing that they can proceed with confidence.

#### 13.4.3 Maximum time period for the making of exclusion zones

The maximum time period for exclusion zones needs to reflect the type of applications made, their frequency and the time cost and effort associated with revisiting exclusion zones periodically even when the intent may be to continue them. The other consideration that needs to be made is whether such matters can be handled at the administrative level without the need for regulations. On its face, there is no reason why such matters could not be handled on a case by case basis at the administrative level using the judgement of both the port or waterway manager and the Safety Director. Indeed, the making of a regulation to set a cap may introduce a rigidity that necessitates additional administrative effort and uncertainty. The effects of uncertainty should not be under-estimated. It is foreseeable, for example, that because a port or waterway manager cannot commit to an 8 month occupation, works on a bridge may not be able to be progressed, or a higher cost option (for undertaking the works) needs to be accepted. This is a clear example where an unintended consequence could result.

### 13.5 Conclusions

The offices of Information Victoria (i.e. various locations around the State), are the most viable and cost effective option to act as the 'prescribed place'.

10 Business Days is considered to be a reasonable time period to be made available to the Safety Director for the purpose of commenting on, amending or opposing an application.

It is not considered necessary to place a cap on the duration of exclusion zones approved.

*Question: Do you agree with these conclusions?*



## 14. Safety standards for pilotage service providers

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### 14.1 Current requirements

The provision of pilotage services in Victorian ports is a small but critically important industry. The current Act requires that all vessels of 35 metres in length or greater must use a licensed pilot when entering, leaving or navigating within specified waters, unless the master has a pilot exemption. The Safety Director is responsible for declaring specific parts of State waters as being waters where pilotage is compulsory. All pilotage services providers are required to be registered with the Safety Director and are subject to a variety of obligations, which currently includes compliance with specified safety standards.

Currently, pilot required waters include the major commercial ports of Melbourne, Geelong, Hastings and Portland, and the local ports of Western Port and Port Phillip. Both the current and new Act require pilotage services providers to be registered with the Safety Director. There are 2 registered pilotage services providers in Victoria, which operate 8 pilot vessels and employ around 40 licensed pilots.

### 14.2 Nature and extent of the problem

The primary justification for establishing compulsory pilotage arrangements in Victoria is the significant potential costs and risks associated with a shipping accident at one of Victoria's four commercial ports. These ports provide the most important trade links between Victoria and the rest of the world. Indeed, the shipping channels to and from the Port of Melbourne are arguably the most important trade links in Australia, given the Port of Melbourne's status as Australia's premier container port.

If an accident occurred and blocked one of these shipping channels then the costs involved would be significant. Each minute, the value of trade through the port of Melbourne is \$142,000. Because of the interdependencies between ports, costs associated with any stoppage in port operations would not only impact on Victoria, it would also impact on the next port of call for ships which are delayed. For these reasons, the costs of temporary cessation of operations at ports increase exponentially the longer the stoppage continues. Compulsory pilotage provides a defence against the possibility of an accident which results in channels being blocked or other critical port infrastructure being damaged.


The purpose of providing this introduction is to make it clear that the purpose of the proposed regulations in this area is not to correct a "market failure". Moreover, the purpose of the proposed regulations is to eliminate or minimise the risk of "regulatory failure". In this context, regulatory failure could potentially occur if compulsory pilotage fails to be effective due to, for example:

- pilots not being sufficiently competent to serve the purpose of compulsory pilotage, i.e. to ensure the master of the ship is advised on relevant environmental and traffic conditions and responds appropriately to this information when navigating the vessel to and from allocated berths; or
- pilots not being fit to serve the purpose of compulsory pilotage due to fatigue, or impairment due to some other reason (e.g. drug and/or alcohol use).

Another potential form of "regulatory failure" is death or injury being suffered by pilots. For example, the process of transferring pilots onto vessels at the point of entry into shipping channels is inherently risky and potentially very dangerous to pilots if proper precautions are not taken by the employer of the pilots, i.e. pilotage service providers. Indeed, a risk assessment of pilot ladder transfers conducted for the Sydney Pilot Service Pty Ltd in 2005 concluded that injuries to pilots during transfers were "likely" and that the consequences ranged from "moderate" to "catastrophic".<sup>26</sup>

Clearly, an unintended consequence of compulsory pilotage would be pilot deaths or injuries, so in principle, it is necessary to make sure that pilotage service providers provide the equipment, resources, etc that are necessary to ensure pilot transfer is as safe as it reasonably can be. Equally, there is a public interest in making sure that pilotage service

<sup>26</sup> A Risk Assessment of Pilot Ladder Transfers prepared for Sydney Pilot Service Pty Ltd, Health & Safety Matters Pty Ltd, September 2005.



providers maintain systems that ensure that, so far as is reasonably practicable, pilots are not impaired by fatigue, drugs and/or alcohol when acting as a pilot.

However, before regulation can be justified there needs to be reason to think that pilotage service providers will not already have sufficient private incentive to protect the safety of pilots and ensure that they provide pilots to customers who are competent and fit to provide the services required.

Pilots are, after all, the key assets of pilotage service providers – without the pilots, pilotage service providers will not be able to provide the service. Importantly, pilots are very difficult to replace by virtue of the long period of time it takes to become suitably qualified for entry, let alone the additional induction process involving approximately 12 months of different types of check trips etc. So it is reasonable to expect that pilotage service providers will already have strong incentives to protect the safety of pilots.

However, it is pertinent to note that in Australia and a number of other countries around the world, a pilot's liability for damage caused by negligence while acting as a pilot is either excluded or limited to a very small sum. Neither is the pilotage service provider vicariously liable for the pilot's negligence. By contrast, the ship owner is vicariously liable for the pilot's negligence, even where the pilot's engagement is compulsory. The evolution of this area of law and the underlying policy considerations are complex. In essence, the law holds that when performing his or her duties, a pilot is an independent professional person and not the agent of the pilotage service provider. The pilotage service provider's duty is confined to the supply of qualified pilots and does not extend to vicarious liability for a pilot's acts or omissions. By contrast, while a pilot acting as such has the conduct of the ship, he or she remains subject to the authority of the master, who retains command. The law therefore holds the ship owner vicariously liable for the acts and omissions of the pilot while under the command of the master.

The limitation or exclusion of the pilot's personal liability is apparently premised both on the characterization of pilotage as a "public good" and on the fact that a pilot is unlikely to be able to satisfy a claim for damages given the high costs of shipping accidents. These principles are not uncontroversial, being somewhat incongruent with contemporary agency law. Nonetheless, they have been an important and well-understood part of the regulatory framework in which ship owners, pilots, pilotage service providers, ports and insurers have operated for many years.

Importantly, the protection from liability enjoyed by pilots and pilotage service providers has the potential to undermine the incentive to provide services of the highest possible standards of competence and safety. Pilotage service providers are not required to internalize the costs of an accident. Rather, the risk that less than optimal services will be provided and that accidents will result is borne by ship owners, who are compelled to engage pilots, despite having no direct means of influencing the risk controls applied by pilotage service providers.

A further issue that confronts ship owners is that in each of Victoria's four commercial ports there is only one pilotage service provider. This could change in the future, but in the short term there is no ready alternative for ship owners who are potentially dissatisfied with the services being provided. This contextual feature would, in principle, undermine the incentive for the virtual monopolist to provide quality services. However, in practice, because there are no barriers to entry, the possibility of a new entrant is a credible threat, i.e. if the incumbent pilotage service providers did not provide quality services then it is likely that an alternative service provider would be set up to win the business. This is particular so given that pilotage is quite a profitable activity.

In summary, the premise of compulsory pilotage is that the engagement of a pilot reduces the risks otherwise posed by a master navigating a ship within an unfamiliar port. Therefore, just as there is a public interest in making pilotage compulsory, there is a public interest in ensuring that pilotage operations are provided safely.

As indicated, the market could fail due to unusual liability arrangements and the monopoly position of existing service providers. However, to say the market would fail is purely speculative because it is not possible to make observations about how existing service providers would behave in the absence of regulation because such regulation has existed for a very long time (predating the Marine Act of 1958). What is more important is what would happen if the existing regulations were not continued.

### 14.3 The base case

The Victorian Guide to Regulation requires that for new regulations or for regulations that are sunseting, a RIS should assume a base case of "zero" or no regulations, against which the proposed regulations and feasible alternatives should be assessed.

In this case, the adoption of a zero base case would imply that there were no prescribed safety standards with which pilotage service providers would be required to comply.



Existing pilotage service providers have procured vessels that meet (and in many cases exceed) the prescribed standards for vessels. In addition, they have developed business systems that are focused on, at minimum, acting in accordance with maximum hour and minimum break requirements specified in Schedule 6 to the current Act.

If the current regulatory requirements were not continued then it is likely that existing business practices and vessels would continue to be used until business systems are reviewed and until current vessels in service reach the end of their useful life. At these points in time (not likely to occur at the same time), decisions about fatigue management, drug and alcohol management and vessel standards would no doubt be reconsidered to a degree. However, it would be patently incorrect to suggest that commercial incentive alone would dictate the decision.

### 14.3.1 Existing regulation of pilotage service providers

Unsurprisingly, pilotage is subject to a range of regulatory requirements, both domestic and international which are documented in more detail in Technical Paper 14.

In summary, there is a comprehensive set of regulatory requirements already imposed on pilotage service providers that are aimed at ensuring the safety of pilotage operations. This significantly reduces (and perhaps even eliminates) the necessity for any further intervention. However, there are three significant areas of risk, which are particularly important for pilotage service providers to manage, and which receive little or no specific coverage under the existing safety requirements:

- safety features of pilot vessels;
- fatigue management; and
- drug and alcohol use.

Vessel standards are prescribed under the NSCV but do not include specific requirements for vessels involved in the type of operations pilot vessels are involved in. However, Part E requires consideration of specific risks and statutory duties require that such risks be eliminated or minimised so far as is reasonably practicable. The same could also be said for fatigue management and the management of drug and alcohol.

Therefore, in principle, these issues are covered and there is no reason to continue with the current prescriptive standards, indeed, to do so would restrict innovation in risk management and therefore could result in both more costly and less safe solutions.

However, for the purpose of facilitating cost effective compliance monitoring and enforcement there would be good reason to supplement the SMS requirements generically specified in Part E by explicitly requiring the SMS of pilotage service providers to include a fatigue management program and drug and alcohol management policies.

In addition, there are arguments in support of at least publishing guidance materials on the minimum specific safety features which should be incorporated by vessels owned by pilotage service providers for the purpose of protecting the safety of pilots during transfer. The key argument for publishing such materials is that it provides a point of reference for assessing compliance with the statutory duty of care. Industry good practice is the starting point for assessing compliance with duties to ensure safety, so far as is reasonably practicable. Good industry practice in most cases is embodied in Australian Standards and the like. This is not so for pilotage service providers. Given the very specific needs and fairly low number of persons involved in the industry across Australia, Australian standards and industry standards have not evolved and been published for pilotage "launches". Accordingly, Schedule 6 (and its equivalents in other States) provide the only point of reference.

## 14.4 Objectives of the proposed regulations

The objectives of the proposed regulations are to support monitoring of compliance with, and enforcement of the statutory duties of pilotage service providers to eliminate or minimise the safety risks associated with fatigue, drug and alcohol impairment and pilot transfer, so far as is reasonably practicable.

## 14.5 Summary of the proposed regulations

Pilotage Service providers would be required to:

- › Prepare and maintain a documented fatigue management program as part of their safety management system. This fatigue management program must specify the tools, methods and measures that are used to manage fatigue and the rules that have been developed to guide rostering, including the maximum hours and minimum breaks that represent the outer limit of what is permitted under the program.
- › Prepare and maintain a documented drug and alcohol management policy which specifies the medications that are permitted (on the basis that they will not impair), drugs that are prohibited and the extent to which alcohol consumption by pilots will be accepted prior to the provision of a pilotage service. The policy should specify the measures, such as periodic and/or random testing, that will be used to achieve and maintain compliance with the policy.

The Safety Director already has the broad capacity to issue guidelines on any matter relevant to marine safety. It is assumed that, should it be required, the Safety Director will issue guidance on risks relevant to the design of pilot transfer vessels and the practicable means available to address them.

## 14.6 Identification and assessment of feasible alternatives

The following is a summary of the assessment presented in Technical Paper 14.

### 14.6.1 No regulations

The base case of no regulations is a viable option in the context described in the preceding sections. However, it is considered inferior to the proposed regulations because it is foreseeable that there would be practical difficulties in monitoring compliance with statutory duties in the key areas of fatigue and drug and alcohol management if policies are not documented such that they can be audited.

### 14.6.2 Requiring compliance with relevant aspects of SOLAS

The effect of requiring compliance with SOLAS would be to continue a level of unnecessary level of prescription, which may impede innovation, result in costs that are higher than they need to be and not be as safe as they could be.

### 14.6.3 Rely on standards prescribed in other States

This option is not to give effect to standards applied in other States, but instead, to rely on such standards provided in other States as providing the point of reference for compliance monitoring and enforcement activities. This is considered a viable option but it suffers from uncertainty surrounding the extent to which such standards would be periodically reviewed. A risk of this option is that it potentially may mean that over-regulation in other States could “cascade” into Victoria. Because of the risk of regulatory failure it is not always possible to rely on requirements in other jurisdictions as providing a fair representation of what constitutes good and appropriately safe industry practice.

### 14.6.4 Continue the current requirements specified in Schedule 6

This option is considered inferior to the base case and to the proposed regulations. The level of prescription creates inflexibility and can reasonably be expected to keep costs higher than they need to over time.

### 14.6.5 Prescribe specific method or tools that must be used to manage fatigue

The approach being suggested is to prescribe the tools and/or methods that are to be used to manage fatigue and audit for compliance.

The accuracy and usefulness of bio-mathematical models has improved significantly over the last decade but expert panel reviews recently completed as an input to national rail safety regulator and national heavy vehicle regulator reforms have determined that none of the bio-mathematical models which presently exist can be relied upon entirely to manage fatigue. This recognises people's differences and that the quality of the sleep and rest they obtain is affected by many exogenous factors. It is also because of human factor issues surrounding the implementation of such models - in particular, the incentive for the individuals who are the subject of such fatigue management programs to provide inaccurate information about the amount and quality of sleep they obtain so that it does not affect their capacity to work.

Fatigue management is a complex issue and one where there is a high risk of regulatory failure. The science behind fatigue management is still relatively under-developed, and accordingly, requiring pilotage service providers (and/or any other duty holders) to use a particular model is likely to dampen risk awareness and risk management to the detriment of safety performance. As a result, the option to mandate the use of a model or other tools is considered an inferior option to the proposed regulations – which requires duty holders to be constantly aware of their risks and in a position to adopt new approaches that become practicable or reasonable to implement.

## 14.7 Costs and benefits of the proposed regulations

It is DOT's understanding that the two pilotage service providers operating in Victoria already have formal fatigue management programs in place assuming the prescriptive hours and breaks specified in schedule 6 as the minimum risk management controls. The proposed regulations require nothing additional but may provide some latitude to better manage fatigue in the context of operational requirements by allowing departures from the maximum hours and minimum breaks prescribed.

During consultations in February 2011 it was revealed that maximum hours are exceeded from time to time when there are unintended and unavoidable hold ups associated with berthing or departing from a port. Following good fatigue management practice, pilotage service providers have developed means to try and foresee the probability of such difficulties in advance and managing potential fatigue issues by only using the pilots who are the most rested for these tasks. However, such activities are technically in contravention of the current maximum hours which are prescribed. By removing the prescription, the proposed regulations avoid the potential for unjustified enforcement activity or costly pilot "change overs" to occur from time to time in the middle of a ship movement.

It should be noted that the same benefits can be attributed to the option of no regulations. Both the proposed regulations and the "no regulations" option rely on statutory duties to prompt effective fatigue management. However, without access to the documentation required by the proposed regulations, it is very difficult, if not impracticable to assess compliance with what statutory duties imply in relation to fatigue management. The proposed regulations are superior to the no regulations option because they support, from a practical perspective, compliance monitoring and enforcement of the duties (by requiring auditable documentation to exist), and therefore, are likely to improve regulatory effectiveness at little or no additional cost. The same argument exists in support of requiring a documented drug and alcohol management policy.

An alternative argument in support of the proposed regulations is that the proposed regulations make explicit what is implicitly implied by the statutory duties. If duty holders do not maintain documentation about how they are managing key organisational risks then such duty holders will not be in a position to demonstrate compliance and may be subject to enforcement action (e.g. improvement notice) that requires the documentation to be generated. The proposed regulations condition expectations at the outset and thus provide some transparency to potential new entrants regarding what is required.

The implementation of the proposed regulations would, in effect, result in an elimination of prescription in relation to pilot transfer vessels. This would provide latitude for innovation and cost reductions over time as pilot transfer vessels are replaced. However, it is possible that existing vessels may not be replaced in the ten year time period for which the proposed regulations are to be applied, and, the extent to which innovation and cost savings will be possible are of course unknown. Importantly, the proposed regulation would act to ensure that the risks that should be considered and that there is a clear understanding of the available means to control such risks.

The estimated costs imposed through the proposed regulation (over the course of its 10 year life) are in the order of \$140k in present value terms. Technical Paper 14 explains how these estimates have been calculated.

## 14.8 Conclusions

Relative to the status quo requirements specified in the Marine Act 1988 and the Marine Regulations 2009, a level of deregulation is possible and is proposed. In particular, the continuation of prescriptive requirements is unwarranted and is not supported.

The key benefit of this change is to enable innovation in risk management and control. This can be expected to result in operational benefits in the future as well as potentially lower capital costs for pilot transfer vessels.

The primary benefit of the proposed regulations over the base case of no regulations is that it supports and enables the monitoring of compliance with, and enforcement of, statutory duties to ensure safety, so far as is reasonably practicable. Without access to the documentation required by the proposed regulations, it is very difficult, if not impracticable to assess compliance, or demonstrate compliance, with what statutory duties imply. The proposed regulations therefore have the effect of making the underlying need for auditable document clear and transparent.



## 15. Accredited persons

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### 15.1 Purpose of accrediting ‘persons’

A number of elements of the Act and the proposed regulations require the boating public to acquire services. For example, when a person wants to buy, sell or modify a boat which must be registered, it is proposed that the details of the vessel must be verified at that point. Similarly, when a person wants to obtain a boating licence or a certificate of competency he or she must first complete the appropriate training and or testing.

The objective of these regulations is to provide the Safety Director with flexibility to minimise the cost of providing these services to the boating public, whilst maintaining assurance that services will be provided properly, i.e. by competent people who are not taking short cuts. These regulations do this by allowing the Safety Director to, in a sense, delegate the provision of these services to non-government service providers.

However, accreditation is, of course, different to delegation. Delegation describes the authorisation of an employee, contractor or sub-contractor to exercise a power or powers of a person in a position of authority. The delegation by the person in a position of authority is typically only permitted to be made to a person (or organisation) that the person in a position of authority has a sufficient level of influence or control over – either through an employment contract, other contract or via statute. Accreditation, on the other hand (in this context) is intended to enable “persons” to provide services to the boating public directly, without any contractual ties between the service provider and the Safety Director. Instead, the tie between the Safety Director and the person providing the service or services is the accreditation itself.

The key issue that this Chapter of the RIS is concerned with is: how can services of sufficient quality be provided most efficiently? There are a number of alternatives. The Safety Director could appoint staff to provide the services or engage contractors or could authorise (i.e. through accreditation) appropriately qualified persons to provide them.

The Act envisages that the option to authorise persons (through accreditation) should be made available to the Safety Director in circumstances where it is more cost effective and practicable to adopt this approach. However, it has been identified that amendments to the Act will be necessary to enable the accreditation scheme to function as intended. What will be needed is specified in Technical Paper 15. The preparation of future amendments is currently under consideration.

Putting this aside, the proposed regulations would enable the Safety Director to accredit persons to provide the services specified as follows:

- verifying a vessel's details for the purpose of satisfying the requirements for— registration of a vessel; or renewal of registration of a vessel; or notification of modification of a vessel; or transfer of registration of a vessel;
- conducting training courses for the purpose of satisfying the requirements for the grant of a marine licence or endorsement;
- conducting testing for the purpose of satisfying the requirements for the grant of a marine licence or endorsement; and
- conducting training and testing for the purpose of satisfying the requirements for the issue of a certificate of competency or endorsement of a certificate of competency.

It should be noted that making these services prescribed services does not preclude the Safety Director delegating the power to provide these services to employees or contractors. This is important because it should be clear that delivery of the services required from time to time could occur through a combination of persons with delegations (e.g. VicRoads) and accreditations (e.g. boat dealers and suppliers).

## 15.2 Nature and extent of the problem

Regulatory requirements can be costly to comply with and so anything which can be done to reduce those costs improves economic efficiency and reduces the economic loss suffered by having to use regulation to address various forms of market failure (that are discussed in Chapter 2). Costs can be reduced if all available economies of scale and scope are able to be exploited. To enable this to occur, the fulfilment of regulatory functions need to occur in the most convenient fashion, for example, by having registration details verified by the dealer who sells a boat to a person, rather than having to make an appointment with a delegate of the Safety Director, so that registration details can be verified by such a person.

In practice, in some cases it will be convenient to use the delegate of the Safety Director (e.g. VicRoads), but in other cases it will be convenient to use accredited persons to provide the service. This is evident through the experience with licensing in the State. Approximately 67% who apply for a marine licence undertake training and do the required licence test through an accredited person because it is more convenient for them to learn what they need to and then undertake the test (on many occasions out of normal business hours) through these accredited persons. The remaining 33% already have a level of experience and understanding or have undertaken their own self-paced learning and find it more convenient to do the test through VicRoads (a delegate of the Safety Director). It is through the availability of such choices that the compliance costs of licensing are minimised.

This example demonstrates that multiple means of complying should be made available and that this approach is necessary to minimise compliance costs. By implication, not having a credible means to authorise third parties to perform certain tasks (i.e. provide prescribed services) is likely to increase costs and impede regulatory efficiency. This is the problem the accreditation scheme is generally aimed at addressing. The proposed regulations form an important part of this scheme, specifically; the proposed regulations define the services which the Safety Director can authorise others to perform.

## 15.3 Objectives of the proposed regulations

The objectives of the proposed accreditation scheme, and the proposed regulations that would support it, are to reduce compliance costs and improve regulatory efficiency

## 15.4 The base case

Pursuant to the Act and regulations, the boating public will be required to obtain the services which are proposed to be prescribed from time to time. In the base case, without the proposed regulations, the Safety Director would be unable to legally authorise persons other than staff, contractors and sub contractors to provide prescribed services. Therefore, in the base case the Safety Director would need to directly provide the services in question potentially through a combination of employees and contractors who have delegated powers.

## 15.5 Identification of feasible options

As indicated and discussed in preceding sections, the Safety Director broadly has two options in providing these services. He or she must either provide the services directly or enable others to provide them. The regulations proposed here do not prevent Safety Director and his delegates from providing prescribed services, and may provide some of them in future as it does at present. However, without these regulations, the Safety Director would have no choice but to do this.

## 15.6 Expected benefits and cost of options

### 15.6.1 Verification services

If the Safety Director were to provide all verification services 'in-house' TSV would need to expand its capacity to do so. Pragmatically, if the Safety Director were to take this course, it is likely that these tasks would be assigned to VicRoads, which is already the delegate for registration services in general.

In the context of this Chapter the key question is what costs would be avoided (i.e. the benefits) by accrediting third parties to perform verifications as a supplement to VicRoads (as a delegate of the Safety Director) providing such services in the future. The answer to this is the verification costs avoided due to boats being purchased or sold through dealers or suppliers (who for their own purposes need to verify vessel details anyway). This saving is in the order of \$214k p.a. If the Safety Director chooses to enable other persons to provide the services (through accreditation) the set up costs estimated and incorporated in Chapter 4 of this RIS would be incurred i.e. \$50,000 one-off costs for the accreditation of 50 dealers and/or suppliers across the State and \$25,000 p.a. to audit each of them at least once a year. Additional to this are the compliance costs of the persons seeking accreditation. If we assume that these essentially match those incurred by the Safety Director (i.e. \$1000 set up costs and \$500 per year maintenance) then the total costs of accreditation over the 10 year period of the proposed regulations is estimated to approximately be \$475k. The present value of benefits over the same period is approximately \$1.8 million. There are therefore significant net benefits.

In practice, the extent of the compliance costs for applicants for accreditation is unknown – partly because what applicants must demonstrate has yet not been determined by the Safety Director. However, it can be safely assumed that such costs must be less than the commercial gains associated with performing the service. If this were not true then such parties will not apply for accreditation. The commercial gains are necessarily a subset of the potential savings net of accreditation costs.

### 15.6.2 Licensing services

If the Safety Director was to provide the second group of services directly then, at minimum, he or she would need to maintain existing capacity (through VicRoads) for providing licence tests. If the Director chose to introduce more stringent requirements for licences such as training courses and practical tests (refer to the Options Paper being released concurrent with this RIS), he or she would also need to establish capacity to provide the services.

Under the second option, the Safety Director would be able to authorise third parties to provide the training and testing necessary to obtain boat licences, endorsements and certificates of competency. For example, the Safety Director may choose to authorise registered training organisations to provide these services.

A key benefit of allowing third parties to provide the second group of services is that it would introduce choice and competition. Allowing existing training providers to provide these services would provide access to economies of scope and scale that already exist within those organisations.

There may be some concern regarding the quality of training provided. However, for the most part this is manageable, as demonstrated by the large number of qualifications already provided by the training sector, many of which relate to inherently dangerous activities (electrical, gas fitting etc).

In practice (as discussed above), the “accreditation” of training providers is already in place and the real impact of the proposed regulations is merely to formalise these arrangements.

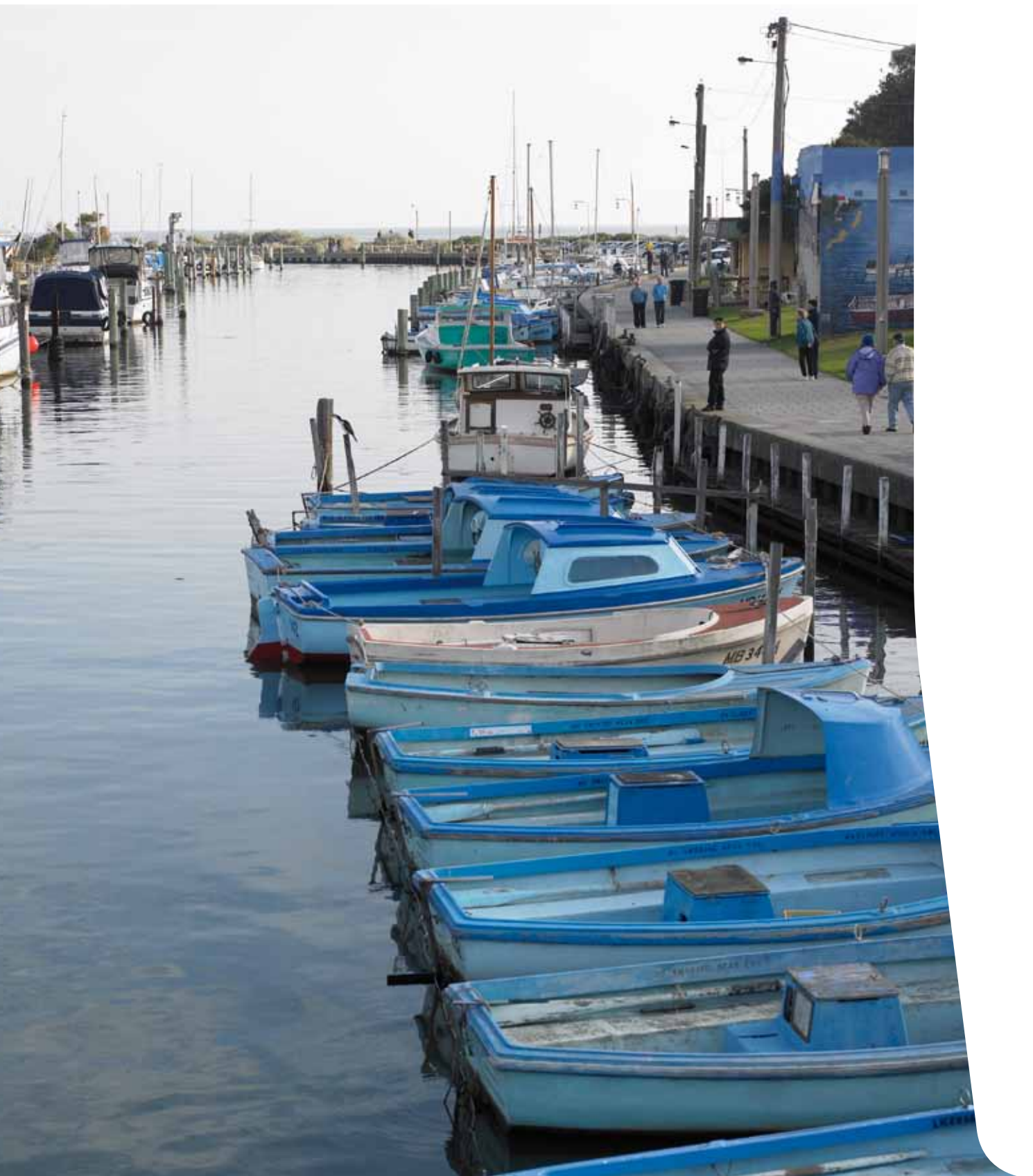
It should also be noted that these regulations will not impose costs on any organisation which does not wish to incur them. If a person chooses to become accredited this will be, presumably, because he or she sees value in doing so or, in other words, that there is a net benefit in being accredited. For example, the value may be in the fact that accreditation enables them to operate a business as a training provider or that it supplements an existing business as a boat dealer.

## 15.7 Conclusions

The enabling of the Safety Director to accredit persons to verify registration details or to accredit persons to conduct licence testing does not, of itself, result in additional costs. Persons who can see commercial gain in being accredited will choose to apply and absorb the costs associated with gaining and maintaining accreditation on the expectation that the net commercial gain will outweigh these costs.

The net benefit to persons seeking a licence or seeking to register or transfer the registration of a vessel is the added convenience of having multiple means of complying. The key quantifiable example of savings is that costs of verification will be avoided by those that purchase a vessel through a dealer.

So, it is reasonable to expect that the proposed regulations will enable net benefits to be generated.





## 16. Prescribed fees

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The costs of administering and enforcing specific sets of regulation are borne by government. Such costs would be avoided if the regulated activity ceased. Accordingly, the incidence of these costs can be attributed to those participating in the activity.

General government policy is that fees should be set on a full-cost recovery basis. Cost recovery through specific fees and charges is appropriate when government services directly benefit the regulated parties who form an identifiable sub-set of the Victorian population. By contrast, if a law has a general beneficial effect for all, for example, by making theft an offence and enforcing requirements with a view to deterrence, then there is generally no attempt to directly recover costs from those who benefit. This is because the cost of regulation is not attributable to any particular activity (for which a fee could be attached) and because there is no particular person or group who benefits from the administration and enforcement of such laws – all Victorians are taken to benefit from this form of regulation.

So despite the general rule, *'cost may not always be the most appropriate basis for setting fees. There may be circumstances in which fees should be set at levels entailing subsidies (i.e. less than full-cost recovery). This may occur, for example, where the benefits of the activity are not fully restricted to the entity being charged the fee.'* (Victorian Guide to Regulation p3-13). This may be because:

- › there are impediments to the entity passing on regulatory costs to its customers – who are the intended beneficiary of the regulation that is being applied; or
- › the beneficiaries of the regulation, at least in part, are not readily identifiable and so cannot be charged a proportion of the costs that can be attributed to them.

This Chapter considers the costs of marine safety regulation and then considers the extent to which these costs:

- › can be attributed to the regulated users of State waters; or
- › are costs which can be attributed to the safety and wellbeing of the community more generally.

Furthermore, there is a consideration of the extent to which there may be impediments for costs to be passed onto the intended beneficiaries of regulation and the extent to which fees set to achieve cost recovery could have significant impacts on small business.

No fees are increased as the proposed regulations do not propose any changes to the fees currently specified in the *Marine Regulations 2009*. However, this does not reflect the outcomes of a thorough review of the fee structure and levels. The expiry regulation included in the proposed regulations makes it clear that fee regulations will expire on 21 December 2012. A review of current fees, the preparation of new fee regulations, a RIS and a further public consultation process will need to be undertaken in 2012.

Given this context, the purpose of this Chapter is merely to provide information on the current costs of marine safety regulation, fee revenues and the level of cost recovery achieved at the aggregate level. It is also thought useful to canvass some of the issues which will be considered in more detail in 2012.

## 16.1 Nature and extent of the problem

There are substantial resources associated with implementing, maintaining, administering and enforcing marine safety laws and for the reasons specified in the introduction, cost recovery from regulated parties should be the objective unless there is reason to believe that:

- marine safety regulation produces benefits for society beyond those internalised by regulated parties; or
- cost recovery would result in significant impacts on small business.

The current *Marine Regulations 2009* specify a large number of different fees which generate revenue and recover costs. The revenues generated in total are presented in Table 16.1.

**Table 16.1 – Estimated revenue and its sources for 2010/11**

Revenue source	\$
Marine licence fees	\$ 10,940,000
Recreational vessel registrations	\$ 10,008,887
Certificates of Competency	\$ 53,571
Pilot licences	\$ 3,062
Pilot exemptions	\$ 9,361
Registration of pilotage service providers	\$ 220
Initial survey	\$ 135,994
Periodic survey	\$ 400,969
Administration of certificates of survey	\$ 149,411
Infringement revenue	\$ 384,000
<b>Total Revenue</b>	<b>\$ 22,085,476</b>

The total costs of marine safety regulation have been estimated and are presented in Table 16.2.

**Table 16.2 – Total estimated costs of marine safety regulation for 2010/11**

	2010/2011
<b>Total Operating Expenditure for TSV maritime</b>	<b>15,880,400</b>
VicRoads administration costs that are unrecovered from MSV	1,897,000
Costs of Water Police attributable to marine safety laws	5,012,000
Costs of authorised officers attributable to marine safety laws	2,875,640
<b>Total costs of marine safety administration and enforcement</b>	<b>25,665,040</b>

Direct and indirect costs are included in these estimates. Direct costs include labour costs, material costs and operating expenses. Non-direct costs include accommodation, corporation overheads and capital-related costs (such as depreciation and maintenance). In some cases overheads have been assumed at a level of 38% in preference to somewhat higher overheads that have been recorded as being applicable. This adjustment has been made because the overheads recorded on paper in some instances do not reflect true costs, but instead are internal accounting conventions. This adjustment is made in accordance with competitive neutrality requirements which require taking into account any cost advantages and disadvantages arising from public ownership, or in this case, public accounting conventions (refer to Technical Paper 16).

On the basis of this information, at an aggregate level there is a reasonable level of cost recovery achieved, indeed close to full cost recovery. However, this is misleading because the revenue generated by the boating facilities and safety education fee is dedicated to this purpose and as a result may not be spent on marine safety regulation functions.

Section 109 of the *Marine Act 1988* (and Section 312 of the new *Marine Safety Act 2010*), make it clear that *any monies available for the purposes of this section must be used:*

- for the provision and maintenance of boating facilities and services to the public; and
- for the conduct of boating safety, boating education and boating promotion programs for the public.

Boating safety and boating education programs are marine safety regulation functions. However, the provision and maintenance of boating facilities and boating promotion programs are not. In 2010-11 \$2.88 million was spent on facilities and in 2009-10 \$2.31 million was spent on facilities. It is forecast that in 2011-12 \$3.19 million will be spent on facilities. The allocation of funding for facilities is the product of a grants system. Based on applications received and recommendations made by DOT (in relation to those applications), the Minister determines what grants will be issued from the discretionary fund of \$5m. There is no guarantee that this funding of \$5m will be spent on fulfilling marine safety regulation functions. Indeed, in principle, the government could determine to spend all revenue generated by the boating facilities and safety education fee (approximately \$9.6m p.a.) on facilities. Accordingly, it is not accurate to categorise the imposition of this fee as recovering the costs of marine safety regulation.

A similar argument applies to the treatment of revenue arising from the payment of fines (i.e. infringement revenue). Such revenue is not generated in an attempt to recover costs, but instead is a form of punishment that is intended to serve the purpose of marine safety regulation – to deter unsafe or dangerous behaviour or conduct.

Following the exclusion of the revenues for boating facilities and safety education, and the exclusion of infringement revenues, it is clear that there is a significant under-recovery of costs at the aggregate level – costs are approximately \$25 million whereas what could reasonably be argued to be “the recovery of costs” is only \$12 million. So cost recovery is less than 50%. Cost recovery is achieved for some fees which relate to particular permissions or processes, whereas it is not achieved in other instances. A major explanatory factor for the under-recovery is that a lot of resources are spent on safety education, information campaigns and policing. There are no ready means of recovering these costs and historically there has been no attempt to do so.

It should be noted that there are presently no linkages between revenues and costs. All revenues that have been categorised as “recovering costs” are paid into the consolidated fund. Equally, funding for the maritime branch of TSV and the Water Police are sourced from the consolidated fund. So if there were no fees, and accordingly no revenues coming in, then this would not imply there would be a discontinuation of funding for marine safety regulation. Due to the potential harms and consequences, continuation of (at least some level of) marine safety regulation is essential.

This leads to the definition of the problem. If no new fee regulations are made to replace the existing fee regulations then no fees would be prescribed and all the costs of marine safety regulation would be subsidised by the State rather than being paid by the sub-set of the population who are engaged from time to time in marine operation on State waters. Indeed, it should be noted that these costs can be expected to increase over time in correlation with the size of the population involved in marine activities as well as amount of time spent out on the water.

As indicated in Chapter 2 there is very little data available on the amount of the population involved in marine activities and their level of involvement. The most reliable indicator available is the long-term growth in the size of the fleet of recreational vessels, which is approximately 2.5% p.a. The size of the commercial fleet has remained relatively stable for the last decade. In any case, given that the commercial fleet is only 1430 vessels, the draw it places on resources is significantly less than that posed by the recreational fleet (approximately 170,000 vessels at present). An assumption that costs would increase at 2.5% p.a. is therefore reasonable.

A zero cost recovery scenario would result in a subsidy of \$25 million in year 1 increasing by 2.5% per year thereafter. Over the years the proposed regulations would be in place these subsidies could be expected to cost tax payers approximately \$231.3 million in present value terms. Given the present level of cost recovery (excluding revenue from the boating facilities and safety education fee), the level of the implicit subsidy paid by taxpayers is \$120.3 million.

## 16.2 Public good argument for under-recovery

As discussed at the beginning of this Chapter, in general cost recovery for regulatory fees and user charges is considered appropriate by government. However, it may not be appropriate where the beneficiaries are not readily identifiable, or when the regulatory entity is unable to effectively pass on costs to its customers.

In the marine safety context, it can be generally considered that the benefits of regulation are internalised by the users of vessels operating on State waters. The exception is waterway users such as swimmers and bathers who are protected from the potential harms associated with vessel operations being conducted in their vicinity.

Such protections are achieved for example by:

- › precluding vessels from areas where vessel operations could pose a risk to others;
- › establishing and enforcing rules that minimise risks associated with interaction with vessels (e.g. drop to 5 knot speed limit within 50m of a swimmer);
- › vessel registration requirements that enable rules and requirements to be enforced; and
- › licensing requirements that require masters of recreational vessels to demonstrate a pre-requisite level of knowledge, etc.

In theory, some of the costs of this regulation – particularly safety education and policing – can be attributed in to other waterway users, but in practice it would not be possible to cost effectively identify these users and impose a fee – this would require for example a toll at points of access to popular waterways and beaches.

A further feature of the marine safety context is that enterprises such as commercial charter boats and hire and drive fleets are known to be very marginal businesses. A large numbers of businesses and vessels are up for sale at present, and there is evidence that there is strong under-demand for second hand vessels or for purchasing businesses as “going concerns”. A reason for this is that charter boat operators and owners of hire and drive fleets, rather than being a in the business of running “commercial” vessels, are in the business of recreation and entertainment, and thus face considerable competition from a vast range of other recreational and entertainment activities.

Accordingly, regulatory costs to these businesses may in many cases be absorbed rather than passed on to customers. There is a risk is that any increase in fees could have serious consequences for many of these businesses.

It is important to note that this analysis does not apply equally to all commercially operated vessels. Cargo carrying vessels, port work boats and pilotage providers do have a capacity to pass on costs and can afford to pay the costs attributed. However, in some cases the level of price discrimination that would need to be exercised (for essentially the same certification and survey services) would be inconsistent with competitive neutrality principles and requirements.

In the short-term, before fees are thoroughly reviewed in 2012, these arguments provide the basis for rationalising the under-recovery of costs from the sector.

It certainly is possible that a level of under-recovery can be justified as an outcome of the review to occur in 2012. However, it is foreseeable that there may be a case to increase fees applicable to commercial certificates so that they at least recover the costs applicable to the administration of certificates and the provision of associated services. If the level of cost recovery is to increase in this area, then a key policy issue will be the time period over which changes to fees are made.

Attachment 16.3 – Summary of fees in *Marine Regulations 2009* and *Marine Regulations 2011*

Fee purpose	Vessel length	Fee level in Fee Units in <i>Marine Regulations 2009</i>	Proposed fee level in <i>Marine Safety Regulations 2011</i>	In 2011 dollars
Applications fee for a safe construction certificate for a new vessel		1.54	No change	\$18.82
Fees for survey of a new vessel (design phase)	≤ 7.5m	3.14/m (all classes)	No change	\$38.37/m (all classes)
	7.5m - 20m	5.05/m (class 1) 4.4/m (other)	No change	\$61.71/m (class 1) \$53.77/m (other)
	≥ 20m	6.64/m (class 1) 5.65/m (other)	No change	\$81.14/m (class 1) \$69.04/m (other)
Fees for survey of a new vessel (construction and commission)	≤ 7.5m	5.65/m (all classes)	No change	\$69.04/m (all classes)
	7.5m - 20m	5.05/m (class 1) 4.4/m (other)	No change	\$61.71/m (class 1) \$53.77/m (other)
	≥ 20m	4.4/m (class 1) 3.14/m (other)	No change	\$53.77/m (class 1) \$38.73/m (other)
Fee for booking a survey for existing vessel		8.4	No change	\$102.65
Fee for survey of existing vessels	≤ 5m	8.85 (class 1) 5.85 (other)	No change	\$108.15 (class 1) \$71.49 (other)
	5m - 10m	19 (class 1) 12.65 (other)	No change	\$232.18 (class 1) \$154.58 (other)
	10m - 20m	25.3 (class 1) 16.9 (other)	No change	\$309.17 (class 1) \$206.52 (other)
	20m - 35m	38 (class 1) 25.3 (other)	No change	\$464.36 (class 1) \$309.17 (other)
	>35m	57 (class 1) 38 (other)	No change	\$696.54 (class 1) \$464.36 (other)
Fee for additional visit for an existing vessel survey		8.4	No change	\$102.65
Fee for considering application for variation of conditions of a safe construction certificate		2.1	No change	\$25.66
Fees for survey for alteration to service category of vessel (design phase)		6.3/hr	No change	\$76.99/hr
Fees for survey for alteration to service category of vessel (construction and commissioning)		8.4/inspection	No change	\$102.65/inspection
Fee for issue or renewal of safe construction certificate		4.6	No change	\$56.21
Fee for issue of duplicate safe construction certificate		4.6	No change	\$56.21



Fee purpose	Vessel length	Fee level in Fee Units in <i>Marine Regulations 2009</i>	Proposed fee level in <i>Marine Safety Regulations 2011</i>	In 2011 dollars
Application fee for issue, variation or renewal of certificate of competency		1.54	No change	\$18.82
Fee for issue of renewal of certificates		4.6	No change	\$56.21
Fee for variation of certificate		2.9	No change	\$35.44
Fee for issue of duplication certificate		4.6	No change	\$56.21
Examination fees for certificates		3.34 (written exam) 6.7 (oral exam)	No change	\$40.81 (written exam) \$81.87 (oral exam)
Fee for application for issue or variation of pilot licence		1.54	No change	\$18.82
Fee for issue of pilot licence		4.6	No change	\$56.21
Fee for variation of pilot licence		2.9	No change	\$35.44
Fee for duplicate of pilot licence		4.6	No change	\$56.21
Examination fees for pilot licences	M – Port Waters of Melbourne G – Port Waters of Geelong P – Port of Portland H – Port of Hastings	M,G,P&H: 105.5	No change	M,G,P&H: \$1289.21
		M,G&P: 84.45	No change	M,G&P: \$1031.98
		M,G&H: 84.45	No change	M,G&H: \$1031.98
		M&G: 63.3	No change	M&G: \$773.53
		M&H: 63.3	No change	M&H: \$773.53
		M&P: 63.3	No change	M&P: \$773.53
		G&H: 42.2	No change	G&H: \$515.68
		G&P: 42.2	No change	G&P: \$515.68
		H&P: 42.2	No change	H&P: \$515.68
		M (both channels): 42.2	No change	M (both channels): \$515.68
		M (one channel): 24.75	No change	M (one channel): \$302.45
		G: 24.75	No change	G: \$302.45
		H: 24.75	No change	H: \$302.45
		P: 24.75	No change	P: \$302.45
Fee for application for issue, variation or renewal of pilot exemption certificate		1.54	No change	\$18.82

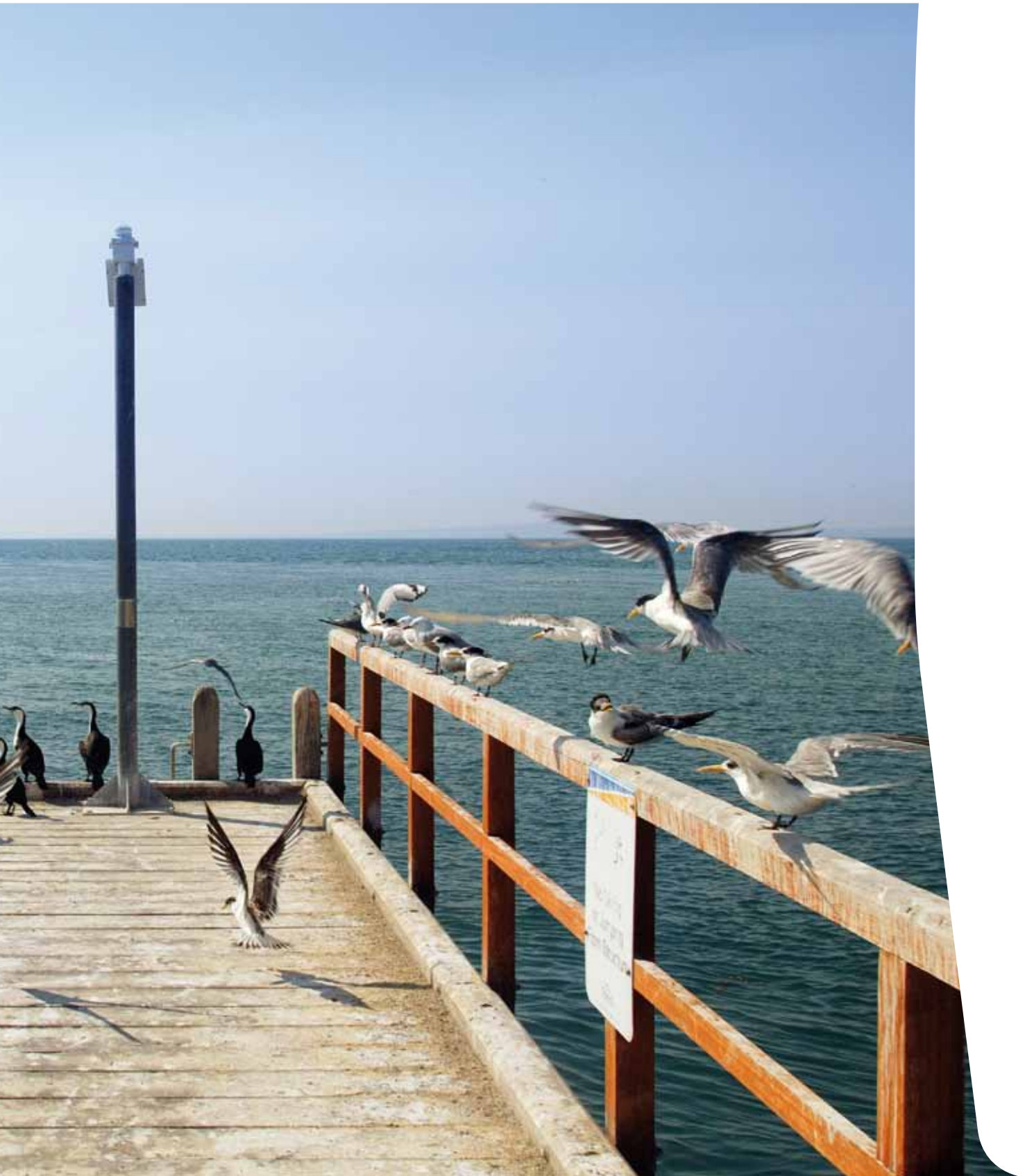
Fee purpose	Vessel length	Fee level in Fee Units in <i>Marine Regulations 2009</i>	Proposed fee level in <i>Marine Safety Regulations 2011</i>	In 2011 dollars
Fee for issue or renewal of pilot exemption certificate		4.6	No change	\$56.21
Fee for variation of pilot exemption certificate		2.9	No change	\$35.44
Fee for duplicate of pilot exemption certificate		4.6	No change	\$56.21
Fee for the conduct of examination by the Safety Director for issue, variation or renewal of pilot exemption certificate	M – Port Waters of Melbourne G – Port Waters of Geelong P – Port of Portland H – Port of Hastings	M,G,P&H: 105.5	No change	M,G,P&H: \$1289.21
		M,G&P: 84.45	No change	M,G&P: \$1031.98
		M,G&H: 84.45	No change	M,G&H: \$1031.98
		M&G: 63.3	No change	M&G: \$773.53
		M&H: 63.3	No change	M&H: \$773.53
		M&P: 63.3	No change	M&P: \$773.53
		G&H: 42.2	No change	G&H: \$515.68
		G&P: 42.2	No change	G&P: \$515.68
		H&P: 42.2	No change	H&P: \$515.68
		M (both channels): 42.2	No change	M (both channels): \$515.68
		M (one channel): 24.75	No change	M (one channel): \$302.45
		G: 24.75	No change	G: \$302.45
		H: 24.75	No change	H: \$302.45
		P: 24.75	No change	P: \$302.45
Application for registration as a pilotage service provider		13.5	No change	\$164.97
Fee for boating facilities and safety education	≤ 4m	2.9	No change	\$35.44
	> 4m	6.05	No change	\$73.93
Fee for special identification plate		1.28	No change	\$15.64
Fee for transfer of registration of a vessel		1.28	No change	\$15.64
Fee for issue or renewal of marine licence or endorsement		General marine: 2.5/yr	No change	General marine: \$30.55/yr



Fee purpose	Vessel length	Fee level in Fee Units in <i>Marine Regulations 2009</i>	Proposed fee level in <i>Marine Safety Regulations 2011</i>	In 2011 dollars
		Restricted marine: 1.25/yr	No change	Restricted marine: \$14.28/yr
		Endorsement, general marine: \$5.10/yr	No change	Endorsement, general marine: \$5.10/yr
		Endorsement, restricted marine: \$2.50/yr	No change	Endorsement, restricted marine: \$2.50/yr
Fee for replacement marine licence		1.56	No change	\$19.06
Fee for search of records of marine licence		\$6.60	No change	\$6.60
Marine licence knowledge test fee		1.95	No change	23.83







## 17. Implementation and enforcement strategy

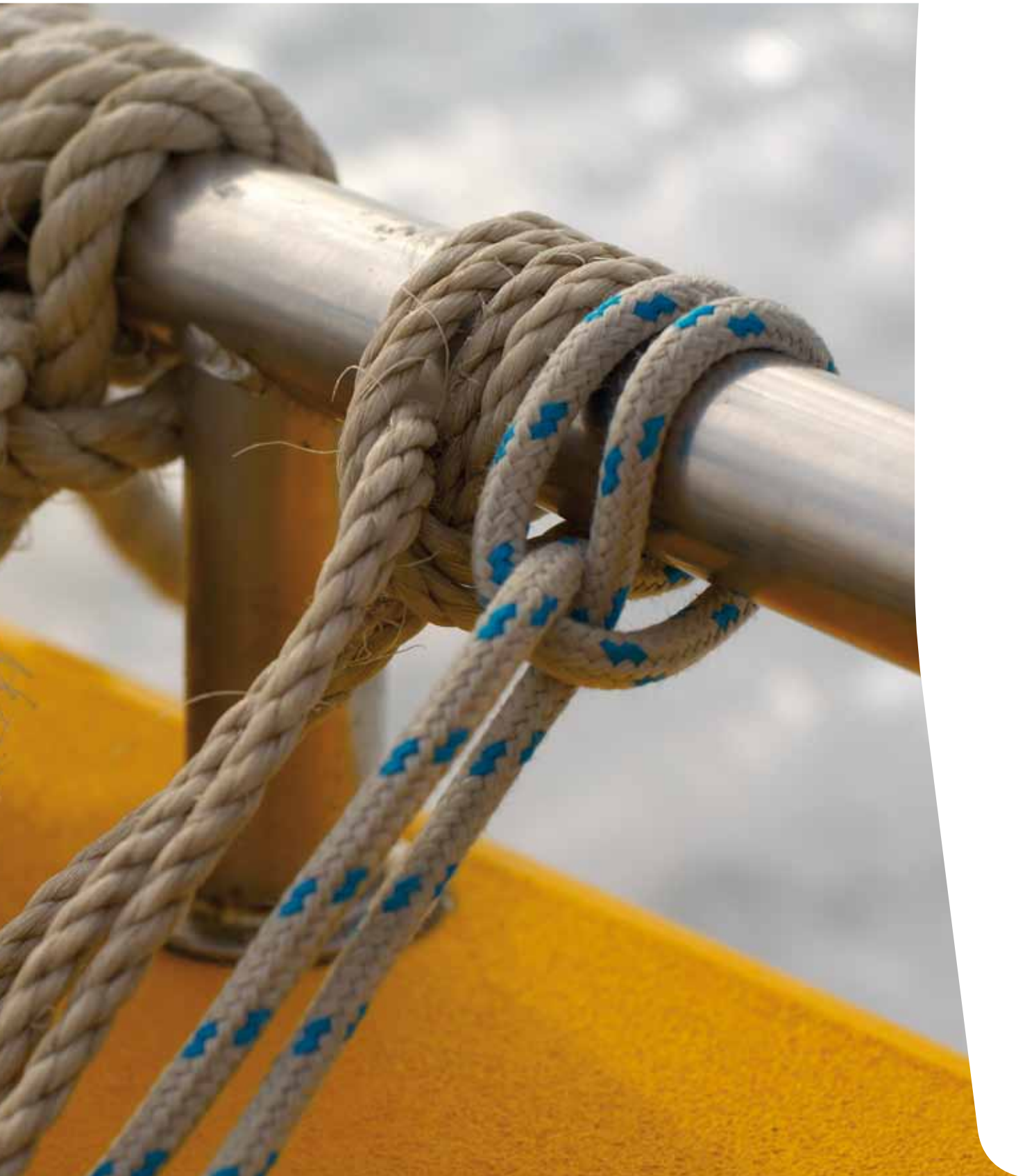
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The proposed regulations will replace the *Marine Regulations 2009* with the exception of those regulations made in relation to Part 4 of the current *Marine Act 1988*. This is the part of that Act which specifies drug and alcohol prohibitions and limitations. Part 4 and associated regulations will remain in force when the new Act and regulations commence, and will not be repealed.

The proposed regulations do not change the scope of matters the regulator, Transport Safety Victoria (TSV), and enforcement agencies are responsible for administering or enforcing. Given this, it is not anticipated that the approach to be taken to regulatory implementation and enforcement will differ significantly from current practices.

Where changes in approach are adopted, these will largely be the result of changes made by the primary legislation. For example, the *Marine Safety Act 2010* made some changes to the functions and powers of TSV. It also provided TSV with the capacity to monitor compliance with and enforce statutory safety duties. Furthermore, Part 8.3 of the Act requires TSV to prepare and implement a marine enforcement policy in consultation with all relevant enforcement policies.

DOT and TSV have worked closely to devise an implementation strategy for the *Marine Safety Act 2010* and the proposed regulations, on the assumption that proposed regulations will be made. It is possible that some of the changes incorporated in the proposed regulations will have to be staged. For example, it is foreseeable that the commencement of the verification processes associated with the registration of vessels will need to commence after the proposed regulations enabling the accreditation of persons to provide verification services. This would enable a “pool” of accredited persons to be available for vessel owners to use in order to comply with the verification requirement. The Government will assess the possible staging of the introduction of the proposed regulations, drawing on the advice of TSV and DOT.



## 18. National competition policy assessment

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The National Competition Policy Agreements (NCPA) set out specific requirements arising out of new legislation adopted by jurisdictions which are party to those agreements. Clause 5(1) of the Competition Principles Agreement sets out the basic principle which must be applied to both existing legislation, under the legislative review process, and to proposed legislation:

*The guiding principle is that legislation (including Acts, enactments, Ordinances or Regulations) should not restrict competition unless it can be demonstrated that:*

- a. The benefits of the restriction to the community as a whole outweigh the costs; and
- b. The objectives of the regulation can only be achieved by restricting competition.

Clause 5(5) provides a specific obligation on parties to the agreement with regard to newly proposed legislation:

*Each party will require proposals for new legislation that restricts competition to be accompanied by evidence that the restriction is consistent with the principle set out in sub-clause (1).*

Accordingly, every RIS must include a section providing evidence that the proposed regulatory instrument is consistent with these NCP obligations. The recently released OECD Competition Assessment Toolkit provides a checklist for identifying potentially significant negative impacts on competition in the regulatory impact assessment context. This is based on the following three questions:

- › Does the proposed regulation limit the number or range of suppliers?
- › Does the proposed regulation limit the ability of suppliers to compete?
- › Does the proposed regulation limit the incentives for suppliers to compete vigorously?

According to the OECD, if all three of these questions can be answered in the negative, it is unlikely that the proposed regulations will have any significant negative impact on competition.

The proposed *Marine Safety Regulations* described in this RIS are not expected to have any significant negative impact on competition. The basis for this conclusion is set out on a chapter by chapter basis below:

### Registration of vessels

Registration is a pre-requisite to the operation of recreational vessels and the proposed regulations make clear this intent. This requirement has no impact on commercial operations, and, as such, it is expected to have no discernible impact on competition.

### Vessel standards for recreational vessels

No standards are proposed to be prescribed despite there being a thorough consideration of this issue in this RIS.

### Licensing of masters of recreational vessels

This licensing requirement is applicable to the person in charge or command of recreational vessels. This requirement has no impact on commercial operations, and, as such, it is expected to have no discernible impact on competition.



## Commercial certification

The proposed regulations in this area largely give effect to national standards. These national standards and associated requirements have been in place for a long period without giving rise to any concerns regarding the lack of competition in the relevant business sectors, whether that be the boat building sector or the commercial vessel operations sector. The proposed regulations in this area do not introduce any new requirements which would limit the number or range of industry participants.

## Certificates of competency

The proposed regulations in this area largely give effect to existing national standards. These national standards and associated requirements have been in place for a long period without giving rise to any concerns regarding the lack of competition in the relevant business sectors, whether that be the boat building sector or the commercial vessel operations sector. The proposed regulations in this area do not introduce any new requirements which would limit the number or range of industry participants.

## Operations of vessels

The proposed regulations relating to the operations of vessels pertain to the conduct of vessels when operating on the water and do not in any way limit the number or range of suppliers who are able to compete against each other.

## PFD requirements

The proposed regulations require Personal Flotation Devices (PFDs) to be carried and to be worn in specified circumstances. These regulations do not in any way limit the number or range of suppliers, excepting that the types of PFDs carried must meet specified standards. However, such standards have been given force by reference for a long period without giving rise to any concerns about a lack of competition in the relevant business sectors.

## Safety equipment

The proposed regulations require certain types of safety equipment to be carried in specified circumstances. These regulations do not in any way limit the number or range of suppliers, excepting that the types of equipment carried must meet specified standards. However, such standards have been given force by reference for a long period without giving rise to any concerns regarding a lack of competition in the relevant business sectors. Furthermore, the proposed regulations actually enable new alternative safety equipment to be carried. Through these changes, the proposed regulations enable increased competition among suppliers to fulfill safety equipment functions.

## Compliance and enforcement

The proposed regulations pertain to tools and mechanisms to improve the efficacy of compliance and enforcement. These regulations have no impact on commercial business activities.

## Waterway management

The proposed regulations specify time frames for making decisions and specify the public places where rules must be made available for public inspection. These regulations have no impact on commercial business activities.

## Standards applicable to pilotage service providers

The proposed regulations would substantially deregulate the prescriptive requirements which currently apply. The prescriptive requirements potentially pose a barrier to entry insofar as they increase the costs of entry. However, neither the proposed nor the existing requirements limit the number or range of parties involved in providing pilotage services. At the margin, the proposed regulations reduce potential cost based barriers to entry, and therefore support increased competition.

## Accredited persons

The effect of the proposed amendments to the *Marine Safety Act* and the proposed regulations is to establish a new market to provide services to the parliament. There is no quota or limit on the number and range of persons who can compete in this new market, however, it will be necessary for all new entrants to demonstrate they have the competence and capacity to provide the prescribed service they are seeking accreditation to provide. The intent of the scheme is to enable compliance costs and administrative costs to be reduced by enlisting the support of industry members who can perform quasi-regulatory services as an adjunct to the services they already provide. The legislative intent is to accredit as many persons as possible, TSV have every incentive to do this, but equally, must be assured that entry thresholds are satisfied. Further, TSV would need to assure itself that persons are conducting themselves in accordance with the terms and conditions of accreditation.

## Conclusion

The proposed regulations do not limit the number of suppliers in the market place, nor do they limit the ability of suppliers to compete or the incentives for suppliers to compete. Given that all three elements of the OECD test are answered in the negative, it is concluded that the proposed regulations do not impose substantive restrictions on competition.





## 19. Consultation

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The proposed regulations have been informed by a comprehensive and on-going consultation process which commenced in 2009. A number of the matters dealt with in the proposed regulations were considered during the review of the *Marine Act 1988* and were raised for comment in the DOT discussion paper: *Improving Marine Safety in Victoria*, which was released in July 2009. Examples include:

- › the proposal to require vessels to have HINs and for registration details to be verified prior to registration and the transfer of registration;
- › the proposal for a range of additional offences to be enforced using infringement notices (e.g. COLREG offences);
- › the proposal for penalty levels to be increased;
- › the option to set standards for recreational vessels and to require seaworthiness checks to be undertaken periodically (which is an option that is not supported but is discussed in this RIS);
- › the codification of the process of making waterway rules, establishing exclusion zones and granting exemptions; and
- › the introduction of new endorsement requirements and/or the escalation of testing and training requirements to be satisfied by new applicants for marine licences.

Indeed, the only matters which have only recently become the subject of consultation are the carriage of safety equipment and other matters affecting very specific parties (e.g. standards for pilotage service providers).

Over 800 people attended information sessions held in August and September 2009 at various locations across the State. Over 400 written submissions were received.


Formal responses were provided to submitters and have been posted on the DOT website.

DOT engaged in numerous follow up consultations with submitters in the lead up to making its recommendations to government in December 2009.

Consultations with representatives of key stakeholder groups continued in 2010. The highlights were the information sessions hosted in March 2010 and consultations surrounding the introduction of the *Marine Safety Bill* into Parliament in August 2010.

Specific consultation in relation to the *Marine Safety Regulations 2011* commenced in October 2010. A series of three "scoping" workshops were hosted by the DOT. These workshops were used to outline plans for matters to be included in the proposed regulations. The persons invited to attend these workshops were the same list of approximately 90 representatives of major stakeholder groups who were invited to attend the information sessions hosted by in March 2010. The list of those invited is provided in the following Attachment. Approximately 70 of the 90 attended one of the three workshops held. All three workshops had identical content.

The same group of people were invited to attend a series of 8 workshops held in February 2011. However, those invited were encouraged to pass on the invitation to others. As a consequence, appropriately 100 different persons attended at least one of the workshops. A number of persons attended multiple workshops.



Workshops covered the following topics:

- › Standards for pilotage service providers;
- › Regulatory requirements for owners of hire and drive fleets;
- › Licensing of masters of recreational vessels;
- › Commercial certification requirements;
- › Enforcement tools and penalty levels;
- › Safety equipment requirements for recreational vessels; and
- › Vessel standards for recreational vessels.

The purpose of these workshops was to “road test” DOT’s thoughts on the content of the proposed regulations. As a result of these consultations and also as an outcome of the process of preparing this RIS, the proposals evolved and changed to those now reflected in the proposed regulations. Hence, the present consultation process is critically important in confirming DOT’s understanding of all relevant costs and benefits (and the merits of alternative options) before it finalises its recommendations to the Minister for Ports about the final content of the regulations.

During earlier rounds of consultation (for example in February 2011), stakeholders sought assurance that sufficient time would be allowed to enable stakeholders to adequately consider the proposed regulations. The Minister subsequently determined that the consultation period should be 60 days or double the minimum statutory consultation period set under the *Subordinate Legislation Act 1994*.

## Attachment 19.1 – Commercial marine stakeholders invited to 2010 and 2011 consultations

Title	Firstname	Surname	Position	Organisation	Address 1	Suburb	State	Postcode
Mr	Tim	Tully	Senior Sergeant	Victorian Police (Water Police)	100 Nelson Place	WILLIAMSTOWN	Vic	3018
Mr	Clyde	Batty	General Manager	BIA	Marine House, 24 York Street	South Melbourne	Vic	3205
Mr	Ross	McGowan	Executive Director	Seafood Industry Victoria	Ground Flr, 484 William Street	West Melbourne	Vic	3003
Mr	Jason	Salter		Dive Industry Peak Body	37 Learmonth Street	QUEENSCLIFF	Vic	3225
Mr	James	Gantidis	President	Charter Boat Association of Victoria (CBAV)	367 Flinders Street	Melbourne	VIC	3000
Mr	Steve	Johnstone		Fishing Charter Association	PO Box 251	CRIB POINT	Vic	3919
Captain	Robert	Buck	Managing Director	Port Phillip Sea Pilots Pty Ltd	PO Box 150	North Melbourne	Vic	3051
Mr	Tony	Heath	Chairman	Gippsland Charter Boat Association	P.O. Box 905	LAKES ENTRANCE	Vic	3909
Mr	Richard	Owen		Seamec	PO Box 156	Lakes Entrance	Vic	3909
Mr	Vic	Goy		MTS	17 Swanton St	Geelong	Vic	3220
Mr	Brett	Davis		SW College of tafe	PO Box 234	Portland	Vic	3305
Ms	Marianne	Whittley		Whittley Marine	99 freight Drive	Somerton	Vic	3062
Mr	John	Haber	Managing Director	Haines Hunter	P.O. Box 4094	Hoppers Crossing	Vic	3029
Mr	Goran	Dubljevic	RINA Chair of Victoria	Royal Institution of Naval Architects	590 Orrong Road	Armadale	Vic	3143
Mr.	Rob	Ashworth	License Holder,Owner,	[Shipwright and Marine surveyor]	PO Box 45	PAYNESVILLE	VIC	3880
Mr.	Eric	Beddome	Workboat operator	[Owns and runs a number of marine workboats]	46 Seaforth Drive	PORTARLINGTON	VIC	3223
Mr.	Bryan	Chapman	Designer	[Naval Architect for ships and boats]	PO Box 332	BALWYN NORTH	VIC	3104
Ms	Tamara	Cook	Hire & Drive operator	[Operates the largest fleet of overnight Hire and Drive boats]	54 Slip Road	PAYNESVILLE	VIC	3880
Mr.	Fred	Herbert	Hire & Drive operator	[Operates the 2nd largest fleet of H&D fleet]	PO Box 24	METUNG	VIC	3904
Mr.	Bruce	Jackson	Workboat operator	[Runs navy support vessels - large ships]	PO Box 61	HMAS CERBERUS	VIC	3920
Mr.	Kevin	Johnson	Workboat operator	[wharf construction - building docklands]	8 Jack Street	CARRUM DOWNS	VIC	3201
Mr.	Sean	Johnston	Designer	[naval architect]	28 Gwynne Street	RICHMOND	VIC	3121
Mr.	John	Mackeddie	Workboat operator	[owns and operates queenscliff to sorrento car ferries]	PO Box 214	QUEENSCLIFF	VIC	3225
Mr.	Michael	Rikard - Bell	Designer	[naval architect]	PO Box 133	MOUNT ELIZA	VIC	3930
Mr.	Greg	Salmond	Builder,Owner	[largest commercial boat builder]	19 Radford Place	BAIRNSDALE	VIC	3875



Title	Firstname	Surname	Position	Organisation	Address 1	Suburb	State	Postcode
Mr.	Lynton	Sharrock	Workboat operator	[charter fishing operator]	PO Box 4169	FRANKSTON HEIGHTS	VIC	LPO 3199
Mr.	Tim	Wong	Agent - Zamira	[agent for largest bunkering vessels in port of melbourne]	PO Box 7663	MELBOURNE	VIC	3004
Mr.	Chris	Tucker	Designer	[naval architect]	31 Perrins Creek Road	OLINDA	VIC	3788
Mr	Wayne	Hill	Manager, Local port Programs	Parks Victoria	Level 10, 535 Bourke Street	Melbourne	VIC	3000
Mr	David	Ritman	Team Leader Maritime Planning	Parks Victoria	Level 10, 535 Bourke Street	Melbourne	VIC	3000
Mr	Max	Dumesny	Port manager	Port Fairy	Moyne Shire Office, Princes St	Port Fairy	VIC	3284
Mr	Keith	Gordon	General manager	Port of Melbourne Corporation	GPO Box 261	Melbourne	VIC	3001
Mr	David	Shennan	Harbour Master	Port of Melbourne Corporation	GPO Box 261	Melbourne	VIC	3001
Mr	Ken	Harrison	Land and Waterway Management officer	Goulburn Murray Water	PO Box 165	Tatura	VIC	3616
Mr	Max	Dumesny	Port manager	Port Fairy	Moyne Shire Office, Princes St	Port Fairy	VIC	3284
Mr	Kevin	Hannagan	CEO	Strathbogie Shire	PO Box 177	Euroa	VIC	3666
Mr	Bruce	Green	Harbour Master	Gippsland Ports	PO Box 388	Bairnsdale	VIC	3875
Mr	Vedemuttu	Shane	Harbour Master	Patricks Port Hastings	Stoney Point Rd,	Crib Point	VIC	3929
Mr	Dilip	Abraham	Harbour Master	VRCA (Geelong)	Level 5, 65 Brougham Street,	Geelong	VIC	3220
Captain	Peter	Gracias	Harbour Master	Port of Portland	PO Box 292, Barton Place	Portland	VIC	3305
Mr	Peter	Robertson	Executive Manager, Infrastructure services	Warrnambool City Council	PO Box 198	Warrnambool	Vic	3280
Mr	Ranjani	Jha	Manager, Corporate Contracts	Colac-Otway Shire (Apollo Bay)	PO Box 283	Colac	Vic	3250
Mr	David	Clarke	Chief Executive Officer	Great ocean Road Coast Committee	PO Box 53	Torquay	Vic	3228
Mr	Warren	Chapman	Secretary	Barwon Heads Coast Committee of Management	c/- Post Office	Barwon Heads	Vic	3227
Mr	Ian	Davis		Barwon Water	P.O. Box 659	Geelong	Vic	3220
Mr	Peter	Rankin		Melbourne Water	PO Box 4342	Melbourne	Vic	3001
Mr	Paul	Lothian		Southern Rural Water	PO Box 153	Maffra	Vic	3860

## Attachment 19.2 – Recreational boating stakeholders invited to 2010 and 2011 consultations

Firstname	Surname	Position	Organisation	Address 1	Suburb	State	Postcode
Tim	Tully	Senior Sergeant	Victorian Police (Water Police)	100 Nelson Place	Williamstown	Vic	3018
Clyde	Batty	General Manager	BIA	Marine House, 24 York Street	South Melbourne	Vic	3205
Christopher	Collins	Chief Executive Officer	VRFish	Ground Floor, 24 York Street	South Melbourne	Vic	3205
Ross	Kilborn	Chief Executive Officer	Yachting Victoria	2/77 Beach Road	Sandringham	Vic	3191
Daniel	Hutchinson	Chief Executive Officer	Rowing Victoria	13/20 Commercial Road	Melbourne	Vic	3004
Mariannae	Whittlely	General manager	Whittlely Marine	36-52 National Blvd	Cambellfield	Vic	3061
Mark	Stav	General manager	JV MarineWorld	15 Fitzgerald Road	Laverton North	Vic	3026
John	Haber	Managing Director	Haines Hunter	56 East Derrimut Cr	Derrimut	Vic	3030
Greg	Fisher	Chief Executive Officer	Club Marine	40 The Esplanade	Brighton	Vic	3186
Theresa	O'Halloran	Business Development Manager	RACV	550 Princes Highway	Noble Park North	Vic	3174
Gerry	Craig	National Public Liability Manager	Nautilus Insurance	28-32 George Street	Sandringham	Vic	3191
David	Heyes	Chief Executive Officer	B.R P Australia Pty.Ltd.	56 Canterbury Road	Bankstown	NSW	2200
Peter	Cleland	Director	Bar Crusher Boats	5 Quality Drive	Dandenong South	VIC	3175
Bob	Pearce		Recreational Fishing and Trailer Boat Owners Advocacy and Support Group	4 Cheviot Close	Wantirna	VIC	3152
John	Hawkins	Vice President	Scuba Divers Federation of Victoria	GPO Box 1705	Melbourne	VIC	3001
Mick	Howman	Secretary	Balmoral District Angling Club	277 Glendinning Road	Vasey	VIC	3407
Ray	Vaughan	Secretary	Brunswick City Anglers Club - 22 members	PO Box 48	Moreland	VIC	3083
Darren	Wloch	President	Williamstown Sportfishing and Game Club - 33 signatures	PO Box 228	Williamstown	VIC	3016
Ray	Caruana	President	Greenvale Sport and Game Fishing Club	PO Box 654	Tullamarine	VIC	3043
Wayne	Coulton	Secretary	Pilkington Trout Angling Club	16 Cameo Court	Narre Warren	VIC	3805
Tom	Liston	President	Wimmera Offshore Anglers Sport & Gamefishing Club Inc	PO Box 1273	Horsham	VIC	3402
Garry	Kerr	President	Anglesea/Aireys Angling Club	PO Box 2056	Camberwell West	VIC	3124
Mike	Filby	Honorary Treasurer	Boronia Sport Fishing Club	PO Box 513	Boronia	VIC	3155

Firstname	Surname	Position	Organisation	Address 1	Suburb	State	Postcode
Russell	Williams	Vice President	Craigieburn Angling Club	PO Box 184	Craigieburn	VIC	3064
Darren	Dyson	President	Portland Sport and Game Fishing Club	PO Box 901	Portland	VIC	3305
Geoff	Dyke	Secretary	Thorpedale and District Angling Club	16 Abbott Street	Moe	VIC	3825
Bernard	Stahn	Secretary	Sonata Yacht Association	PO Box 6010	Doncaster	VIC	3108
John	Honeybone	Secretary	South Gippsland Yacht Club	PO Box 2	Inverloch	VIC	3996
David	Judkins	President	Ultimate Yacht Association	10 Rennison Street	Beaumaris	VIC	3192
Patricia	Street	Honourary Secretary	Newhaven Yacht Squadron	PO Box 309	San Remo	VIC	3925
Brian	Adeney	Honourary Secretary	Explorer 16 Association of Australia Inc.	C/- 20 Swayfield Road	Mount Waverley	VIC	3149
Austin	Swain	Commodore	Anglesea Motor and Yacht Club	PO Box 1636	Geelong	VIC	3220
John	Mole	Honourary Treasurer	Geelong Trailable Yacht Club	PO Box 899	Geelong	VIC	3220
Stuart	Simmons	Commodore	Hampton Sailing Club	PO Box 42	Sandringham	VIC	3191
Andrew	Buck	Secretray	Port Fairy Sportfishing club	122 Youls Road	Yambuk	VIC	3285
Lawrence	Cox	Secretray	Waverly and District Anglers	PO Box 972	Mt Waverley	VIC	3149
Graeme	Dobson			72 Collett Street	Kensington	VIC	3031
Brian and Jill	Golland			4 Somerdale Avenue	Ocean Grove	VIC	3226
Marty	Ellul			108 Kelp Street	Warrnambool	VIC	3280
Barry	Tanner			2730 Balliang Raod	Bacchus Marsh	VIC	3340
Charlie	Micallef			3 Yimbala Crescent	Greensborough	VIC	3088
John	Gademski		Australian Accredited Training Pty Ltd	PO Box 2206	Footscray	Vic	3011
Ted	Henderson		Australian Easy Train Pty Ltd	PO Box 200	Hampton Park	Vic	3976
Ron	Sheppard		Australian Volunteer Coastguard Assoc	PO Box 64	Sandringham	Vic	3191
Jim	Gascoigne		Gascoigne Training & Assessment	PO Box 2026	Mountain Gate	Vic	3156
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# Assessment of the *Marine Safety Regulations 2011* against the *Transport Integration Act 2010*

## Introduction

In 2010, the *Marine Safety Act 2010* (the Act) was passed by Parliament. The Act makes important improvements to Victoria's marine safety legislation and responds to marine safety risks that have emerged in recent years. The Act is expected to commence on 1 December 2011 and will replace the current *Marine Act 1988*.

Regulations are required to support the Act and, to this end, the proposed *Marine Safety Regulations 2011* (the Regulations) have been prepared. The Regulations will contain much of the detail of the schemes set out in the Act.

This document assesses the content of the Regulations against the objectives and decision-making principles outlined in the *Transport Integration Act 2010* (TIA). The TIA establishes a new policy framework for transport in Victoria. This framework aims to create an integrated and sustainable transport system that contributes to an inclusive, prosperous and environmentally responsible State.

Part 2 of the TIA requires a 'transport body' to have regard to specific transport system objectives and decision-making principles when making decisions, exercising its powers or performing its functions.

The Department of Transport (DOT) is classified as a 'transport body'. As such, DOT considered the objectives and decision-making principles when drafting the Regulations. Consequently, the Regulations are aligned with the objectives and principles outlined in the TIA and have the potential to deliver demonstrated social, economic and environmental benefits in the marine sector.

## Transport system objectives

The following objectives, outlined in Part 2 of the TIA, are relevant to the Regulations:

### Social and economic inclusion

The Regulations seek to promote a culture of safety among all participants in the marine environment. This has the potential to promote public confidence in marine operations. Improved public confidence in the sector is likely to increase marine participation rates, making the sector more inclusive and increasing its social value.

The Regulations also help to make marine activities more accessible by supporting licensing changes made in the Act. These licensing changes allow a wider range of people to operate recreational vessels. Previous settings required anyone operating a recreational vessel to hold their own operator licence. However, new laws allow a person without a licence to 'operate' a vessel if a vessel master with a marine licence provides on-board supervision. This arrangement will reduce barriers to entry for many people wanting to participate in recreational boating.

### Economic prosperity

The Regulations facilitate economic prosperity in the marine sector.

Significantly, the Regulations reduce costs in certain areas. For example, the Regulations propose that all marine licences be renewed for 5 years at a time. Currently, a person may choose to renew their marine licence for 1, 3 or 5 years. Offering only 5 year licences will reduce red tape, generating significant administrative and compliance cost savings. Over the 10 year operation of the regulations, 450,000 transactions would be eliminated, saving over \$15 million.

The Regulations also introduce new provisions allowing people to be accredited by the Safety Director to fulfil certain quasi-regulatory functions. These functions will include being a training provider, administering marine licence tests, and assessing compliance with vessel standards. Analysis found that it is not economically viable for Transport Safety Victoria to maintain capabilities in these areas, and that accrediting others to carry out these functions would lead to significant cost savings.

It is important to note that, in some cases, changes have not been pursued in the Regulations because of the likely economic impact of the changes. For example, recreational vessel standards and periodic checks have not been established by the Regulations because the costs of these requirements would outweigh their estimated safety benefits.

### Environmental sustainability

The Regulations make it a condition of registration that vessels be sufficiently maintained, and make it an offence not to carry out this maintenance. For example, the Regulations require that vessels not be operated with fuel leaks. Having an enforceable offence in place is anticipated to increase compliance with vessel maintenance requirements, reducing marine pollution and promoting environmental sustainability.

### Safety, health and wellbeing

The purpose of the Regulations, as well as the Act, is to provide for safe marine operations in Victoria. This demonstrates that promoting safety in the marine environment, and in turn the health and wellbeing of people who participate in marine activities, is the core focus of the new marine regime.

For example, existing regulations require personal flotation devices (PFD) to be worn at times of "heightened risk". The Regulations refine the definition of "heightened risk", making it more objective. This has distinct safety benefits in that it makes the circumstances in which a PFD must be worn much clearer, increasing the likelihood of compliance.

The Regulations also allow infringement notices to be issued for an increased range of marine offences. This will remove many existing barriers to enforcement and encourage compliance with marine safety obligations, leading to positive safety outcomes for waterway users. An increase in some infringement penalties is also aimed at improving compliance and safety.

### Efficiency, coordination and reliability

The Regulations improve efficiency, coordination and reliability in a number of ways.

For example, the Regulations give the Safety Director a maximum of 10 days to respond to any exemption or exclusion zone proposed by waterway managers. This will increase reliability and provide certainty to event and project managers about the time they need to allow if they require exemptions or exclusion zones to carry out works in State waters.

The Regulations also require towage service providers to consult with operational partners about procedures and the assignment of towage vessels. This responds to stakeholder concerns that towage service delivery in ports is currently fragmented.

The objective of integration of transport and land use was less relevant to the Regulations.

## Decision-making principles

The following principles, outlined in Part 2 of the TIA, are relevant to the Regulations:

### Principle of triple bottom line assessment

Marine operations provide a broad range of economic, social and environmental benefits to the State. There is clear value in promoting improved safety and more streamlined administrative practices in the marine sector, which the Regulations seek to do.

The Regulatory Impact Statement prepared on the Regulations has assessed the economic and social impact of changes proposed by the Regulations in detail. In some cases, certain changes have not been pursued because the triple bottom line assessment of these changes did not justify their implementation.

### Principle of integrated decision-making

An integrated approach has been taken during the development of the Regulations, with input sought from various levels of government, government agencies (including Transport Safety Victoria), the private sector and the general public.

### Principle of the transport system user perspective

The transport user perspective was considered throughout the development of the Regulations, and consideration of this perspective has prompted important improvements in marine safety laws.

The Regulations move away from the detailed, prescriptive fatigue management requirements that currently apply to pilotage service providers. The Regulations now require service providers to have a fatigue management program that satisfies their duty to ensure safety as far as reasonably practicable. This move to principles-based regulation for fatigue management follows the lead of the similarly principles-based TIA. The approach gives service providers greater flexibility in how they meet the requirements instead of prescribing a 'one size fits all' approach.



The Regulations give similar flexibility to vessel users by allowing them to substitute some previously-required safety equipment with modern equivalents. For example, users will be able to substitute laser flares and hand held strobe lights for red flares, and a GPS unit for a compass.

#### Principle of stakeholder engagement and community participation

Public consultation has been recognised as a key part of DOT's review and modernisation of Victoria's marine safety laws.

As part of the initial review, the sector was extensively consulted about issues affecting the sector and possible reforms. The objectives of the Regulations also make it clear that the involvement of relevant stakeholders in marine safety is paramount.

Further public consultation on the Regulations with both commercial and recreational marine stakeholders is currently underway. As part of this consultation process, Departmental representatives are holding a series of open sessions to discuss the Regulations from 15 August to 8 September 2011. These sessions are being held in both metropolitan and regional Victoria to maximise stakeholder accessibility and participation opportunities.

An exposure draft of the Regulations and Regulatory Impact Statement looking at the costs and benefits of the Regulations have also been publicly released. DOT has encouraged stakeholders to make submissions in response to these documents to ensure their views on the Regulations can be gauged and any changes made if necessary.

DOT has also sought public comment on specific areas of marine regulation to inform future sector reforms. For example, an Options Paper for Marine Licensing has been publicly released to look at licensing issues and reform options in more detail, with stakeholder feedback encouraged.

#### Principle of transparency

DOT has adopted a transparent approach to reviewing and amending the policy and legislative settings in the marine sector. Sector stakeholders have been, and continue to be, extensively consulted through publicly accessible documents and forums.

Submissions on the Regulations will also be treated in a transparent manner – they are considered public documents, subject to the *Freedom of Information Act 1982*, and accessible to the public.

The principle of equity and the precautionary principle were less relevant to the Regulations.

## Conclusion

The Regulations, in conjunction with the Act, promote and improve marine safety in Victoria. The new regulatory scheme will modernise and strengthen the State's marine operations.

In aligning with the objectives and decision-making principles, the Regulations will also help mobilise the TIA in the marine sector. This will ensure that the sector contributes to an inclusive, prosperous and environmentally responsible State, and is positioned to meet future challenges.

