

Boating Safety Strategy

2007 Review of the New Zealand Pleasure Boat Safety Strategy





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Compiled by Maritime New Zealand for the National Pleasure Boat Safety Forum

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New Zealand's national pleasure boat strategy has led to a 50% reduction in recreational boating fatalities over the last 6 years in spite of increasing boat numbers. The strategy has used a combination of education and targeted legislation to tackle the key risk factors in recreational boating fatalities.

This publication, the *Boating Safety Strategy: 2007 Review of the New Zealand Pleasure Boat Safety Strategy*, recommends safety initiatives that will guide all organisations involved in boating safety for the next 5 plus years.

A short *Overview* version (8 pages) is also available, which summarises the key points.

The review is the work of the National Pleasure Boat Safety Forum and involved:

- Accident Compensation Corporation
- Boating New Zealand (representing marine publications)
- Coastguard Boating Education
- Auckland and Wellington Regional Council harbourmasters and Queenstown Lakes District Council harbourmaster (representing regional councils)
- Kiwi Association of Sea Kayakers (representing the kayaking community)
- Marine Industry Association
- Maritime New Zealand
- Ministry of Transport
- New Zealand Coastguard
- New Zealand Jet Sports Boating Association
- Auckland Police Maritime Unit and SAR
- Toi Māori
- Underwater New Zealand
- Waka ama representative
- WaterSafety New Zealand
- Yachting New Zealand.

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Purpose of the review

This review has three purposes:

- to determine the extent to which the 1999 recreational boating safety strategy of the Pleasure Boat Safety Advisory Group (PBSAG) has been implemented, and to identify any barriers to implementing it
- to determine how effective that strategy has been in reducing accidents
- to look at what changes to that strategy, if any, could be made to achieve further improvements in safety.

Executive summary

In 1999, the Pleasure Boat Safety Advisory Group (PBSAG) published a comprehensive report on recreational boating safety in New Zealand. It concluded that while the fatality rate in New Zealand was comparable to many overseas jurisdictions, there was clearly scope for significant improvement. The report made 13 principal recommendations, which, for the first time, provided a framework on which to build an integrated national safety strategy for recreational boating.

In developing that framework, the PBSAG was conscious of a simple but crucial message arising out of the analysis of boating accidents before 1999: that accidents were not the result of deliberate reckless behaviour, but of a lack of safety awareness and knowledge.

PBSAG's recommendations focused, therefore, on promoting self-reliance and skipper responsibility, through safety awareness and education campaigns for pleasure boat operators and their crew. In one area, PBSAG found an overwhelming case for legislation and recommended that carrying lifejackets in all vessels be mandatory.

In this review we examine the extent to which PBSAG recommendations have been implemented; how effective this strategy has been; and what changes, if any, are needed to further improve safety levels.

Methodology

First, we examined trends and changes in the recreational boating sector.

Secondly, we examined the effectiveness of the programmes that were put in place following the recommendations in the PBSAG report. The main recommendations included:

- mandatory carrying of lifejackets
- increased enforcement
- a more co-ordinated approach amongst organisations promoting recreational boating safety

- increased targeted boating safety education and public awareness.

All these measures have been put in place to a greater or lesser extent, and we considered their impact on boating safety.

Thirdly, we investigated all fatal boating accidents between 2000 and 2006. The information from the 123 documented fatalities has been incorporated into the statistical analysis. We tabulated the resulting data and analysed it to provide a statistical basis for the conclusions and possible options for the future.

Fourthly, we examined each of the 123 fatalities to see how adopting a particular initiative would have affected the outcome. This analysis provided a clear picture of the options that would be most effective in the coming years. Once we had identified the most promising safety options, we prepared a cost-benefit estimate, taking into account the cost of each option to the boating community.

Finally, we surveyed several international recreational boating jurisdictions for details of the recreational boating safety management initiatives in place, and the reasons for their introduction.

Recreational boating in New Zealand since 1999

The number of pleasure boats in New Zealand has continued to grow and in 2006 was estimated at 350,000. Increased spending on boats has seen a

trend towards larger, faster craft on the one hand, and many small craft such as kayaks entering the market on the other. The growing pleasure craft industry is now measured annually in billions of dollars, with impacts on many parts of society that may not normally be associated with “messing about in boats”.

The number of plastic moulded kayaks has increased from hundreds in 1999 to tens of thousands in 2007. The number of larger craft has also grown, and the degree of sophistication, both in construction and equipment, has changed the profile of the typical boat that Kiwis have traditionally owned. The number of places where boating takes place, especially inland, has also increased considerably, principally through the availability of inexpensive kayaks.

The number of people who go boating has remained constant, with 1.5 million people, or one in three, stating that they go out in a boat at least once a year.

New materials and construction techniques have led to types of craft not envisaged in 1999. Technological advances have also helped to make boats safer, in terms of both construction and equipment. The electronics field, principally navigation and communications, has made spectacular advances that have led to significant changes to how pleasure craft are used and how those on board keep in touch with others at sea and on shore.

Changes in living standards and the way New Zealanders live have also been reflected in boat types and usage. There is increasing pressure on facilities and more congestion in popular places, especially over the summer months.

Implementation of the boating safety strategy

All recommendations of the PBSAG have been implemented partly or in full. Some are yet to be completed because of limitations of funding and resources. The safety awareness programme has yet to address two of the four principal factors in the safety equation – communications and alcohol. However, the television and radio advertising targeting lifejacket use and weather forecasts has been very effective, when measured by recall and behavioural change.

Legislation has been introduced requiring people in pleasure craft to carry lifejackets and to wear them in adverse conditions. More people are taking education and training courses, while safety information has been consolidated into booklets or onto DVDs to make it more accessible to the boating community.

Safety services have been enhanced with improved rescue-craft capability throughout the country, along with greater fixed-wing aircraft and helicopter availability. The VHF radio network now covers 98% of coastal waters to about 30 miles offshore, monitored 365 days a year. In many popular boating areas, Maritime New Zealand’s (MNZ) radio network is complemented by Coastguard and private radio stations, with some offering a 24-hour service.

The ability to effect timely rescue has also improved for those who activate emergency locator beacons at sea, since the establishment of the Rescue Coordination Centre New Zealand (RCCNZ) at Lower Hutt.

Establishing uniformity between regional bylaws and Maritime Rules Part 91 has ensured consistent navigation safety legislation across the country.

Since 2000, MNZ has made a concerted effort to collect as much data as possible, particularly in relation to fatal boating accidents. Investigations have looked in much greater depth at accidents, and the improved consistency and analysis applied to every fatality has meant MNZ can confidently make safety recommendations based on evidence.

Enforcement of safety regulations by both central and local authorities has been strengthened throughout the country and infringement notices (with instant fines) have been introduced in many areas.

The PBSAG report emphasised the importance of having consistent, agreed safety messages, promoted within the pleasure-boating community by all agencies in step with one another.

Following the publication of the PBSAG report in 1999, PBSAG was wound up. As a result of a recommendation in the report, a new safety forum representing a wide cross-section of the boating community and government was established in 2000. This forum, the National Pleasure Boat Safety Forum (NPBSF) was formed to co-ordinate the implementation of the national pleasure boat safety strategy, and to minimise duplication of effort and waste of limited resources.

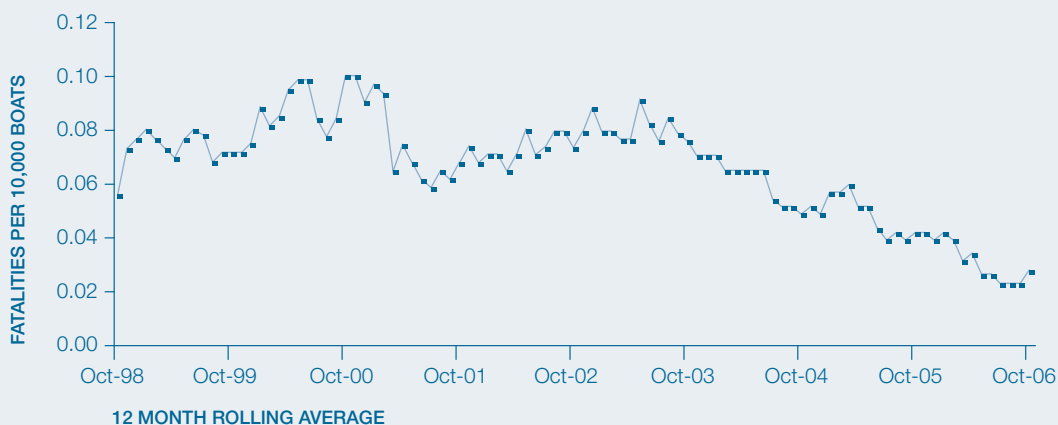
Effectiveness of the strategy

It is difficult to determine with any degree of certainty the relative contribution that each of the PBSAG initiatives has made to reducing the annual loss of life in boating accidents. However, as a package of measures they have undoubtedly led to a substantial and sustained lowering of the boating toll.

When measured against the number of boats, the graph below shows that the fatality rate in 2006 had reduced to about a third of the 2000 figure.

.....
**“50% reduction
in recreational
boating fatalities
over the last
6 years.”**

Recreational boating fatality rate



The national campaign promoting lifejacket wearing commenced in 2002.

The results are very encouraging and, along with anecdotal evidence, strongly suggest that the safety messages have been taken on board by the majority of boaties. The results of a number of surveys showing a 96% compliance rate with the requirement to carry lifejackets exemplify the responsible attitude of most pleasure boat operators. The Navigation Safety Rule and Bylaws, which require a lifejacket to be carried on board for each person at all times, came into force in March 2003.

While welcoming the reduction in the number of boating fatalities, we must acknowledge that one aspect of boating safety – behavioural change – takes time to achieve, and ongoing reinforcement of safety messages is necessary to secure long-term and permanent change.

Key factors in recreational boating fatalities

There are four key factors that contribute to recreational boating fatalities. In nearly every boating accident where someone dies, one or more of the following factors is present.

- 1 The failure to wear lifejackets** in small craft that are prone to capsize (those less than 6 m in length) remains the principal reason for loss of life in boating accidents, even while the increased use of lifejackets has saved lives.
- 2 The inability to communicate distress** following an immersion-type accident has been shown to be a causal factor in fatalities that is almost equal to the lack of lifejackets.
- 3 Bad weather** and sea conditions continue to be a major cause of accidents that have fatal consequences.

- 4 **Alcohol** is indicated as a significant cause of accidents and fatalities, but the difficulty of collecting hard evidence means this is underreported as a causal factor.

A further factor, independent of the actions of the boat owner or operator, is the lack of flotation in some craft. If all new boats under 6 m in length were fitted with level flotation (buoyancy that makes the boat float level when inverted), there would be fewer fatalities.

Those most at risk of losing their life in a recreational boating accident are males in craft under 6 m in length going fishing. This finding has not altered since the 1999 PBSAG report.

The analysis of recreational boating accidents and the lack of significant impact on safety where compulsory skipper licensing or vessel registration have been introduced overseas strongly suggest that neither of these measures would lead to a meaningful reduction in the number of fatalities in New Zealand.

Conclusions and future options

The recreational boating safety strategy recommended in the 1999 PBSAG report has proved very successful, with the number of fatalities falling by around 50% in the last 6 years. Before the strategy was implemented there were around 22 fatalities a year, with the number trending upwards. In recent years, the annual average has been around 14 fatalities, trending downwards. In 2006, the lowest boating toll on record was achieved at just seven fatalities.

These figures represent an average of six lives saved for each year that the strategy has been in place – a minimum of 36 lives saved over a 6-year period.

The NPBSF strongly believes that continuing the current strategy, which focuses primarily on a “self-reliance” approach to safe behaviour and on skipper responsibility, is essential. The principal method of the strategy is the safety awareness and education programme targeting the recreational boating community. Continuing this programme is fundamental if hard-won gains in safety are not to be lost.

Central to the safety awareness programme are the four key factors that the review has confirmed as the principal elements in the fatality equation: lifejackets, communications, the weather and alcohol.

The NPBSF noted the focus on co-ordination within the sector, both in terms of uniform national navigation safety legislation and the promotion of safety messages, which has enhanced the effectiveness of the work to date.

The NPBSF also acknowledges that safety-awareness promotion works best as part of an integrated package that includes improvements in the design and manufacture of recreational craft and equipment, enforcement, search and rescue services, and the delivery of education programmes.

To that end, and based on more in-depth accident investigation and analysis of all fatal accidents over the past 7 years, the NPBSF has concluded that the strategy should be augmented by new initiatives in some areas. The options are set out below.

In reaching these conclusions, the NPBSF is acutely aware of the funding required to implement the safety strategy. Since its inception, the strategy to improve safety awareness has been seriously hampered by the lack of adequate and reliable sources of funding. It has relied heavily on sponsorship, which has proved difficult to obtain and has declined drastically in recent years.

Without an adequate and stable source of funding into the future, it is unlikely that the fall in the boating toll can be sustained, much less reduced. Mechanisms for making sufficient funding available to implement the strategy effectively are added to the lists of options below. Options that NPBSF does not support at this time are also listed.

Options supported by the NPBSF

1 Education and training

The considerable success of the current initiatives for skipper education and training, highlighting the skipper’s responsibility for safety on board and for compliance with all legal requirements, needs to be continued. The NPBSF also recommends that the safety awareness programmes be supported with additional resources.

The NPBSF endorsed the need to reduce as far as possible any barriers to on-water training, to ensure that skippers have the maximum opportunity to receive practical training at reasonable cost.

2 Default wearing of lifejackets in craft under 6 m

In spite of a significant increase in lifejacket use generally, more than half of the fatalities in the past

7 years involved people not wearing lifejackets. A proposed change in the wording of the legislation requiring lifejacket wearing would require the skipper to decide when it was safe to take lifejackets off, as opposed to when it was necessary to put them on, as required currently. This legislation would apply to all boats under 6 m in length.

3 Mandatory carriage of communication equipment

The statistical analysis of fatal boating accidents from 2000 to 2006 indicated that the ability to communicate distress following an immersion-type accident is just as important as wearing lifejackets in preventing fatalities. In many cases, providing a reliable form of communication involves little extra cost.

4 Mandatory alcohol limits for skippers

The 2004 report on “Alcohol and recreational boating”, the results from accident investigations, the increasing speeds of modern boats, and the widespread reporting of alcohol as a factor in boating mishaps have convinced NPBSF members of the need for a maximum blood-alcohol level for skippers of boats underway. Evidential testing is also recommended.

5 Fitting buoyancy to provide level flotation

The safety benefit of having a craft that floats level following a capsize is very apparent. The NPBSF members endorsed work already done by some builders of small craft and supports further initiatives by designers and builders for level flotation in all craft under 6 m.

6 Petrol tax funding for safety programmes

The NPBSF supported petrol tax funding for safety programmes, noting that only a small proportion of the tax currently paid into the road fund from petrol used in pleasure boats was returned to the recreational boating sector.

7 Enforcement

The NPBSF supported additional enforcement of rules and bylaws.

8 Volunteer programme

The success of regional council and MNZ volunteer work was noted by the NPBSF.

9 Accident analysis

The NPBSF considers ongoing investigation and analysis to be an essential cornerstone for the development of a safety strategy.

Options not supported by the NPBSF

1 Registration of powered recreational vessels

The minimal impact that this option would have on preventing fatalities and injuries has resulted in lack of support for this measure. However, the NPBSF strongly endorsed the need for every pleasure craft to display a clear form of identification, because of the benefits in terms of improved behaviour from skippers knowing that they might be identified.

2 Mandatory licences for skippers

If a mandatory licence for skippers were introduced, it would almost certainly apply only to operators of power boats, and the skippers of other craft would gain no benefit from the legislation. The current strategy has been particularly successful in reducing the annual boating toll, and so continuing the co-ordinated promotion of voluntary education and safety awareness is strongly supported.

3 Mandatory construction standards for vessels

While a significant number of fatalities in boats under 6 m could be prevented if all small craft floated level even when inverted, there is no support for this to be a mandatory provision for pleasure boats at this time.

4 Registration of pleasure boats, with an annual safety charge

This is not the NPBSF’s preferred option for funding safety programmes, given the substantial fuel excise road tax already paid on petrol used in pleasure boats by the recreational boating sector.

5 Sales tax on boats and boating equipment

The NPBSF does not support this option for funding safety programmes, noting that this initiative was particularly unsuccessful when introduced in 1981.

6 Seabed licences

The NPBSF noted this initiative was currently under discussion between central and local government. The NPBSF does not support this measure for

“Education and targeted legislation tackle key risk factors in recreational boating fatalities.”

funding boating safety programmes, noting that any such licence would be payable by only a small sector of the boating community.

Summary of recommendations

All members of the NPBSF recommend that:

- the successful safety strategy developed from the PBSAG recommendations and initiated in 2001/2002 be maintained, including the following programmes:
 - **Safety awareness:** continuing the nationwide promotion of safety messages targeting the four key factors in the safety equation – lifejackets, communications, the weather and alcohol.
 - **Education:** increasing the opportunities for training and education for pleasure boat owners, and the number of operators attending courses.
 - **Enforcement:** improving capability, including the use of infringement notices for offences.
 - **Safe boating advisors:** continuing the development of the volunteer safety advisor and honorary enforcement officer programmes managed by MNZ and local authorities.
 - **Accident analysis:** continuing the in-depth accident investigation and analysis of all fatal recreational boating accidents and, where possible, all other serious boating accidents.
- the following programmes be introduced to augment the existing strategy:
 - **Default lifejacket wearing:** amending the wording in the Navigation Safety Rule (and Navigation Safety Bylaws) to state that wearing a lifejacket in a recreational vessel under 6 m is required unless the skipper has decided it is not necessary because the risk is low.
 - **Mandatory carriage of communications equipment:** making it mandatory for all craft to carry at all times an effective means of communicating distress that is appropriate to the situation and that, in the case of vessels under 6 m in length, remains effective after immersion.
 - **Level flotation:** developing and implementing voluntary industry standards for vessels under 6 m, with further research and development into retrofitting level flotation in existing pleasure boats.
 - **Blood alcohol limits and testing:** setting a maximum blood alcohol concentration for the skipper of a recreational vessel underway and permitting evidential testing by police following any accident or incident; educating boat users of the dangers associated with the use of alcohol in boats.
 - **Funding from petrol tax:** that central government provide NPBSF with additional funding for pleasure boat safety from revenue collected as petrol tax from fuel used in pleasure boats.

Part 1

Pleasure boat safety strategy implementation to 2007



1.1 PBSAG safety strategy 1999

The Pleasure Boat Safety Advisory Group (PBSAG) was convened in 1998 by the Maritime Safety Authority¹. The group, chaired by the Director of Maritime Safety, comprised a cross-section of those involved in recreational boating including safety providers, industry, sport, and central and local government agencies. The group undertook research, both nationally and internationally. There was wide consultation with the maritime sector in New Zealand regarding pleasure boat safety standards and practices.

In December 1999, the group reported the following findings to the Minister of Transport:

- 90% of fatal accidents and 88% of non-fatal accidents are caused by the skipper not knowing enough about safety
- 75% of those who drown could potentially avoid death simply by wearing a lifejacket
- 79% of boats have inadequate safety equipment
- 53% of fatal accidents occur in bad weather or sea conditions.

Based on these findings, the PBSAG recommended the adoption of a new, integrated recreational boating safety strategy. In developing that strategy, the PBSAG was conscious of a simple but crucial message arising out of the analysis of accidents – that most fatalities are the direct result of poor boating knowledge leading to errors, rather than of deliberate, reckless behaviour.

The PBSAG's recommendations, therefore, focused primarily on promoting a "self-reliance" approach to safe behaviour by providing more and better-targeted safety education for pleasure craft operators and passengers.

The only area where further regulation was recommended by the PBSAG was in respect of lifejackets. With potentially 75% of all fatalities being preventable (or at least, the chances of survival dramatically increased) through the simple act of wearing a lifejacket, the group considered the case for compulsory carriage of them to be overwhelming.

The group's principal recommendations (summarised) were to:

- make carrying lifejackets compulsory, and wearing them mandatory in situations of heightened risk
- increase enforcement of maritime laws and bylaws
- increase safety education for boat operators
- increase funding for boating safety initiatives
- establish a formal network of boating safety organisations
- improve understanding of stability and flotation in small craft
- develop and promote vessel usage guidelines
- develop vessel care and maintenance guidelines
- further develop the "launch warden" system
- carry out further research on the impact of alcohol use on recreational boating
- improve data collection and dissemination of boating accident information
- increase use of activity separation by local authorities where appropriate
- consider social, ethnic and gender implications in safety programmes.

A copy of the PBSAG report's executive summary, covering both conclusions and recommendations, is attached as Appendix 1.

¹ The Maritime Safety Authority was renamed Maritime New Zealand on 1 July 2005

1.2 Developments in recreational boating 1999 to 2006

This section examines the changes and developments within the recreational boating sector in New Zealand during the period since the PBSAG report was published in December 1999. It includes demographic and vessel usage trends, advances in technology, and numbers of participants.

General trends

The PBSAG report was based on demographic data relevant to recreational boating in the period from 1995 to 1998. While trends that were apparent then have largely continued, the past 6 years have brought some minor changes to the way people use their boats, and also to the type of boats that are most popular.

Boating habits are likely to alter quickly in response to significant changes in the economic environment. For example, the “oil-shock” of the late seventies saw a dramatic increase in the popularity of sailing boats, while the imposition of sales tax on boats in 1981 brought an immediate downturn in the industry that lasted more than a decade.

As the New Zealand economy has prospered, the public has had more money available to spend on pleasure boats. This has been demonstrated by the increasing sophistication of the equipment fitted to boats and the improving quality and sophistication of the boats themselves. Prices have increased accordingly and, at the same time, what was a luxury in 2000 some boat owners now consider to be a necessity.

The applications of electronic technology have generated the biggest change. While electronic systems such as GPS and charting systems have made navigation more accurate and convenient, communication systems can also provide better safety, mostly at lower cost. VHF radio coverage has improved considerably, and VHF transmitters are more reliable and cost less. Cellphone technology has improved, with wider coverage.

The increased availability and sophistication of rescue services has improved the ability to effect timely rescue. The number of rescue vessels has increased and they are faster, more seaworthy and better equipped, with better-trained crews. There has been an increase in the availability of both fixed-wing aircraft and helicopters for search and rescue. Shore-based support from maritime radio, Coastguard radio and private radio stations, along

with an enhanced RCCNZ, have all contributed to the increased likelihood of distressed mariners being rescued.

Accident investigation and analysis indicates little change in the last several years in the profile of those most likely to have a serious (even fatal) boating accident. Those most at risk are men, fishing from craft such as dinghies and small runabouts. Usually they have had a number of years of boating experience, but most fatalities occur in rough sea conditions.

Internationally, there has been a significant move towards increased regulation of pleasure craft in many countries, often as a result of society's decreasing acceptance of risk. In most cases, increased legislation has not been based on accident research and evidence, but on the assumption that extending some existing commercial requirements to pleasure craft would improve safety.

However, the results have been inconclusive. Those countries where there has been an ongoing publicity campaign, with or without a significant increase in prescriptive legislation, appear to have had a sustained reduction in the number of boating fatalities. On the other hand, where increased legislation has been introduced without ongoing safety promotion, a significant reduction in fatalities has often not been apparent in the longer term.

Vessel types

The vast majority of pleasure boats in New Zealand fall into two categories: trailer power boats and small open dinghies and kayaks. The production of “superyachts” and trailer power boats has increased considerably in the past 5 years. However, during the last decade, the production of medium-sized yachts and launches (those between 8 and 20 m in length), has fallen.

At the highest-priced end of the market, the number of craft over 20 m in length has grown rapidly, not just in New Zealand but internationally. This is a very small segment of the market in terms of boat numbers, but a significant one for the boat-building industry and in terms of the investment required. It also provides careers in the international pleasure boat industry.

Medium-sized craft, those between 9 and 20 m in length, were once a major part of the boat construction industry in New Zealand. But domestic sales of boats of this size have fallen in recent years, with about 90 boats with a total value of \$74m being sold each year. A similar number are exported.

As the domestic production of this type of vessel has reduced, there has been a similar fall in the number of home-built boats to an estimated annual production of about 50. However, there has been a rapid rise in the number of this size of craft imported to New Zealand during the past 5 years. Mass-production techniques in a number of very large factories in several countries have captured this market throughout the world, with economies of scale not possible for smaller premises or the home builder.

The building of vessels less than 8 m in length has flourished in New Zealand. There are currently some 70 local factories employing around 520 people, which are producing vessels to a total value of \$132m for the domestic market each year.

More and more craft of this size are being built in aluminium. These craft are becoming increasingly sophisticated, and safer. Under the CPC (compliance plate certified) scheme introduced in a joint venture by the Marine Industry Association (MIA) (formerly the Boating Industry Association) and Coastguard, about 70% of boats between 4.5 and 8 m are now built with spaces either sealed as a void or foam-filled to provide positive flotation in case of capsize or swamping. Most boats smaller than 4.5 m also have positive flotation, with some now achieving level flotation rather than floating "bow-up", as is typical of most small craft.

The greatest development in small boat construction over the past 5 years is reflected in the substantial increase in production of roto-moulded polyethylene and polypropylene craft. The large majority are kayaks of various styles. They are relatively inexpensive and very portable.

As a result, boating is now taking place in many more places than previously, both at the coast and on inland waterways. Adventure boating and "extreme" sports, particularly in kayaks and canoes, are becoming increasingly popular, with ever-greater challenges being attempted. Fast-flowing rivers, waterfalls and rapids attract thrill-seekers, often in locations that are distant from population centres. Communication and accessibility are difficult in remote locations, presenting a challenge to rescuers when a mishap occurs.

There are also a growing number of novel craft and on-water activities. Examples include amphibious and semi-submersible vessels, kite-board sailing, dam-dropping, white-water kayaking and wake-boarding, all of which operate in situations where existing legislation and safety advice is not always applicable or appropriate.

Pleasure boat numbers

Establishing the exact number of pleasure boats in New Zealand has been an ongoing challenge. At best, the number can only be an approximation unless accurate figures are established by census. All estimates and numbers derived from surveys are presented below, along with an estimate of the number of boats scrapped annually.

The 1981 census put the number of craft at 176,000. Updating this figure with industry statistics increases the number to 266,000 by 1998, without taking into account boats scrapped during the period. Research in 1998 put the number of boats in New Zealand at 241,000 (see the PBSAG report). This figure was accepted by the PBSAG as the most accurate.

The PBSAG projected the number of pleasure boats by 2006 to reach 293,000 if the 1998 growth patterns remained constant. However, growth in the sector has accelerated, particularly in the number of kayaks sold in New Zealand. It is estimated that over 40,000 kayaks entered service between 2000 and 2006.

In 2004, the MIA published the Boating Industry Survey. Based on manufacturers' reports of construction, this survey put the growth in vessel numbers at 20,800 per year (not allowing for the scrapping of old craft).

This annual increase indicates an additional (approximately) 125,000 craft entering service in the 6 years between 1998 and 2005. Applying this increase to the 1998 PBSAG figure of 241,000 gives a figure of 365,000, less the unknown number of vessels that have been scrapped.

In 2006 a survey conducted annually for MNZ by Colmar Brunton included, for the first time, multiple vessel ownership. In all cases, owners of keel-boats and motor launches also own a dinghy that is used as a tender. In addition, a number of other small craft such as kayaks and sailing dinghies are often owned by the same person. No previous survey or census has included multiple vessels belonging to one person.

Based on the 2006 survey, the estimated number of boats in this category is 40,000, which has been added to the 365,000 estimate in 2006 to give a figure of 405,000.

(The average life of a pleasure boat is unlikely to exceed 40 years. This indicates that approximately 8,000 craft are scrapped each year.)

Subtracting the estimated total number of vessels scrapped between 1998 and 2005 from the current figure of 405,000 leaves 350,000 as an estimate for 2006. This equates to an average net increase of 12,600 pleasure craft each year since 1998. Manufacturer surveys suggest a slightly higher number in recent years.

The MIA Boating Industry Survey in 2004 estimated there were 462,000 pleasure boats in New Zealand.

While the estimated totals vary considerably, it is in the category of small craft, such as dinghies, kayaks and small sailing boats, that the principal variation occurs. There is no doubt that the number of small craft is increasing rapidly, with up to 10,000 kayaks or canoes alone sold in New Zealand each year, according to manufacturers.

All projections and estimates in this review have been based on the **estimated number of 350,000 pleasure craft** in New Zealand in 2006.

Various surveys have been undertaken during the period 2002 to 2007 based on a sample number of 1,000 randomly chosen people. The results vary significantly from year to year. The most recent survey conducted for MNZ by Colmar Brunton in 2007 of 1,000 people concluded that there were **409,000 pleasure craft** in New Zealand.

Usage of pleasure boats

As lifestyles have evolved, leisure activities more often occupy shorter periods. The availability of more and more different activities could mean less time spent on the water than in previous years. However, there appears to be no reduction in the number of pleasure boats on the water. If anything, there is increasing congestion and demand for limited space in popular areas.

There is a tendency for boats to be used rather less for long-term cruising and more for day or weekend trips than in the past. Consequently the popularity of trailer craft has increased ahead of permanently moored yachts and launches.

Increasing demand for marina berths indicates a continued demand for larger craft. About 7% of pleasure boats are suitable for cruising and living aboard for extended periods. These boats are normally kept in marinas or on permanent moorings.

The ability of relatively small craft to make longer, faster voyages safely has also increased, so smaller boats are travelling further afield and often

considerable distances out to sea. This trend is much more apparent when taken over a longer period, say 20 years.

Participation rates²

There has been little change over time in the number of people involved in recreational boating. The PBSAG report concluded that approximately 1.5 million New Zealanders made a voyage in a pleasure craft each year. Other surveys have consistently indicated a figure of about 1.4 to 1.5 million participants annually, or one in three New Zealanders. If each participant is active in boating for a period of 60 years, this indicates that approximately 25,000 retire from participation each year and are replaced by an equal number of newcomers. However, if the average “boating life” of an individual is less than 60 years, then the number of newcomers is greater. Many who purchase boats today have little or no boating background.

The amount of time each participant in recreational boating spends afloat is particularly difficult to measure. A useful comparison, however, can be made with the commercial maritime sector. There are some 3,000 vessels in a Safe Ship Management system. If each commercial vessel is used for 50 weeks each year, and each of the 350,000 pleasure boats is used for only one week each year, then the on-water activity of the recreational sector is twice that of the commercial.

Drowning prevention strategy

In 2005, the Accident Compensation Corporation introduced *The Drowning Prevention Strategy: Towards a Water Safe New Zealand 2005-2015*. The strategy is a plan to prevent death and injury due to drowning and other water-related causes. It was developed by a working group representing organisations involved in all areas of water safety. Boating-related accidents are a significant cause of death by drowning, and the strategy will be an integral part of future initiatives adopted for the recreational boating sector. A copy of the strategy is available at: www.drowningstrategy.govt.nz

² An “on-water hours” calculation is included in this report as Appendix 2.

1.3 Implementation of the PBSAG strategy

This section sets out the progress that has been made in implementing the PBSAG's safety strategy since 2000.

The NPBSF was formed in 2000 following the recommendation contained in the PBSAG report. All members of the NPBSF support the principal finding in the PBSAG report – that:

“Education and promotion of safety awareness are more effective in the recreational sector than legislation.”

Recommendation 1: Safety Equipment

Lifejackets

The PBSAG report recommended:

the introduction of national legislation requiring the compulsory carriage of sufficient personal floatation devices (PFDs) for all persons on board all recreational craft.

The PBSAG report further strongly recommended: *the wearing of PFDs in at least the following circumstances:*

- *when operating all types of small open recreational craft;*
- *in rough seas or adverse weather, crossing bars at river or harbour entrances, and on fast flowing rivers; and*
- *in any other situation where the skipper, in fulfilling his/her responsibilities as set out in section 19 of the Maritime Transport Act 1994, deems necessary.*

This recommendation was fully implemented in March 2003 with the introduction of Maritime Rules Part 91: Navigation Safety.

Maritime Rules Part 91 goes somewhat further than the recommendation by making lifejacket wearing mandatory in **all** cases of heightened risk. This is assessed by the skipper, who carries responsibility for safety on board. The rule also requires that the lifejacket meets a recognised standard, is the correct size for the person, and, if not being worn, is readily accessible.

Application of Maritime Rules Part 91

Where a regional council has taken jurisdiction under the Local Government Act for navigation safety in its

area, it is required to have in place Navigation Safety Bylaws. In these areas, Maritime Rules Part 91 does not apply. However, Navigation Safety Bylaws must not be inconsistent with Maritime Rules Part 91 and, if there is a conflict, then the provisions of Maritime Rules Part 91 apply.

In addition, some councils have incorporated Maritime Rules Part 22: Collision Prevention, into their Navigation Safety Bylaws by reference. This allows infringement notices to be issued for breaches of the Collision Prevention Rule, a measure that is often considered much more efficient than taking a prosecution under the Maritime Transport Act 1994 (MTA).

In areas where a council has not taken responsibility for navigation safety, Maritime Rules Part 91 applies and is administered by MNZ.

Enforcement

The PBSAG report recommended:

an increase in local enforcement.

Some local authorities and MNZ have opted to introduce an infringement notice system with “instant” fines. Where a skipper (commercial or recreational) is in breach of a maritime rule and the breach leads to a significant injury or death, MNZ or police will consider prosecution under section 65 of the MTA. Section 65 states that it is an offence to operate or maintain a vessel or maritime product in a way that causes any unnecessary risk to any other person or property.

MNZ has increased the number of prosecutions and has assisted police with prosecutions on some occasions. Many police officers are still unaware of the provisions in section 65 of the MTA. Local authorities in some areas have also prosecuted offenders, as have the police. Fines have increased from being typically \$500 to \$2,000 over the past 6 years. The maximum sentence under section 65 is a fine of up to \$10,000, and/or up to one year's imprisonment. The only prison sentences imposed under section 65 have been on recreational skippers.

In many cases, where recreational skippers have reportedly committed an offence, they have been required to attend an interview with local harbourmasters, MNZ staff or police. Their boating behaviour has usually improved as a result, and most skippers subsequently attend a boating safety course.

Some regional authorities have staff members who are employed as enforcement officers. A number

have also appointed honorary enforcement officers (“launch wardens”). Some 300 council volunteers have been appointed so far, along with about 220 volunteer MNZ safe boating advisors, whose role is solely promotion of safety awareness.

MNZ has 13 maritime safety inspectors in the main ports, whose primary role is dealing with commercial shipping, but who also assist with recreational craft when required. Three staff are employed in the recreational boating safety team. All field staff have delegated authority under the MTA to enforce its provisions in relation to pleasure boats.

Section 55 of the MTA allows MNZ to detain any vessel or impose conditions on its use, provided there are clear safety grounds for doing so. This provision has been used on pleasure boats on a number of occasions. Harbourmasters have powers in relation to pleasure boats that constitute a danger to navigation.

Recommendation 2: Education and public awareness

The PBSAG report stated that in almost all cases the cause of boating accidents was poor knowledge of good boating practice, rather than deliberately reckless behaviour. The report also acknowledged that, not surprisingly, many skippers were unaware of what they did not know.

The PBSAG report recommended:

increased levels of targeted recreational boating safety initiatives and education programmes, with a particular focus on issues identified as important in the Group’s analysis.

In 2000, the National Pleasure Boat Safety Forum agreed to implement a safety awareness programme under the umbrella of “skipper responsibility” that would sequentially target, over 5 years, the principal factors in the fatal accident equation:

- not using lifejackets
- not checking or understanding marine weather forecasts
- not carrying communications equipment.

While it was agreed that other safety messages would continue to be promoted (including the need to improve boating knowledge by attending a Coastguard course), the adoption of this strategy would help to ensure that there was a co-ordinated focus on the key safety factors, and the best use was made of limited resources.

Other factors in the fatality equation, such as alcohol, would receive specific attention once the higher priority initiatives were under way.

Organisations promoting marine safety awareness

The safety awareness programmes undertaken by individual member organisations over the last 5 years to give effect to the national safety awareness strategy are set out below.

ACCIDENT COMPENSATION CORPORATION (ACC)

In 2005, the government-led *New Zealand Drowning Prevention Strategy: Towards a Water-Safe New Zealand 2005-2015*, was introduced. This programme is in its early development stages, led by ACC.

ACC has been a principal supporter of programmes undertaken by WaterSafety NZ, MNZ and WaterSafe Auckland during the past 4 years. This essential funding has been a foundation for a wide variety of boating safety initiatives, including the TV advertisement promoting weather forecasts.

COASTGUARD BOATING EDUCATION SERVICE (CBES)

CBES has developed a wider range of courses and has promoted attendance at these courses widely. It has also recently developed on-water training using RYA-based courses in New Zealand. Further specialised courses for kayaking, powerboating and jetboating have also been developed in conjunction with the national organisations who administer each sport.

MARINE INDUSTRY ASSOCIATION (MIA)

The MIA and Coastguard have strongly promoted safety construction standards and the purchase of boats with a CPC (compliance plate certification). Led by the MIA, there has been an increase in numbers entering industry training. The incorporation of existing education programmes, such as those run by Coastguard, into industry training has ensured a greater understanding of safety issues within the marine industry.

MARITIME NEW ZEALAND (MNZ)

In the summer of 2001/2002, MNZ initiated a very modest campaign promoting the use of lifejackets. With only a limited budget available, the principal media used were radio, billboards, road shows and boat shows and print advertising.

The following summer of 2002/2003, with the assistance of commercial sponsorship, MNZ

introduced limited television advertising for the first time, featuring a series of three different 15-second lifejacket safety promotions. Given that the recreational boating community is both large and widespread, television is considered to be the most effective marketing tool for promoting safety messages. This has been borne out in subsequent campaign assessments carried out by independent market research companies.

Over the summer of 2003/2004, an expanded “Stay on top with a lifejacket” campaign, anchored by a new 30-second television commercial featuring Colin Meads, was introduced. The advertisement targeted men who feel that lifejackets are not “manly” and that a real man wouldn’t be seen in a lifejacket when they are out with their mates (the key barrier identified by research into the previous year’s campaign). Television advertising was again supported by radio advertising, billboards, a new direct mailout to 15,000 boaties and attendance at boat shows throughout the country.

The “Stay on top with a lifejacket” television campaign was maintained during the summer of 2004/2005 (its third summer), and was joined by a new advertisement targeting the second major causal factor in the fatality/accident equation – the weather. Television advertising was supported by radio advertising, newspaper and magazine advertising, a direct mailout to 35,000 boat owners, and at boat shows and other promotional venues.

The new “Stay on top with a weather forecast” campaign sought to address the failure of boaties to check and act on information in the marine weather forecast before heading out in the water. This is a key cause of more than 50% of recreational boating fatalities and a factor in a number of serious injury accidents. The new campaign’s objective was to raise awareness about the importance of checking and understanding the marine weather forecast, and pointing people in the right direction to obtain a forecast. The key messages were about checking the local marine weather forecast, understanding the conditions, and “if in doubt – don’t go out”.

For the summer of 2005/2006, the lifejacket and weather campaigns were maintained, again using the media of television, radio, direct mail, newspaper and magazine advertising, and events such as boat shows and fishing contests, as well as using volunteer safe boating advisors at launching ramps.

When the requisite funding can be found, MNZ is intending to tackle the third critical safety factor identified by the NPBSF – effective communications (see Appendix 6).

MNZ continues to produce a range of publications that are provided free of charge to the boating public and to organisations and individuals who assist with distribution. The most significant of these is *Safe Boating: an Essential Guide*, which is published in a joint venture with WaterSafety NZ. Since 2000, some 260,000 copies have been circulated.

In June 2006, MNZ introduced the *Safe Boating New Zealand* DVD. Developed from an Australian version produced by the Australia New Zealand Safe Boating Education Group (ANZSBEG), the DVD was produced in New Zealand by MNZ with assistance from many regional harbourmasters. About 40,000 copies were distributed in the first year. The DVD, which runs for about two hours, will be revised and expanded during the coming years.

COASTGUARD NEW ZEALAND

There are 70 Coastguard units. Sixty-one units own or operate at least one rescue vessel, or have craft available that can be sent to boats needing assistance. Nine Coastguard units own or operate fixed-wing aircraft to search for boats in distress or overdue. A number of private vessels, owned by members of Coastguard, also assist with rescues in some areas.

All rescue vessels owned by Coastguard units are in a Safe Ship Management system and are operated to commercial standards. The training and qualifications required of skippers and crews have been upgraded considerably, which has greatly enhanced the ability of rescue services to respond effectively.

Some Coastguard units operate a marine VHF radio service for Coastguard members and the public. Continuous broadcasts of marine weather forecasts and contemporaneous weather reports (“nowcasting”) on VHF Radio channels 20, 21 and 23 have been extended to most coastal areas north of Bay of Plenty by Northern Region Coastguard. The nowcasting service is being extended to take in the Bay of Plenty, Nelson and Cook Strait areas and planning is under way to put the service in place in all areas where boating is popular.

REGIONAL COUNCILS

Most regional councils have taken jurisdiction for navigation safety in their area with some opting not to include selected inland waterways. Aside from port areas, Otago, Westland and Taranaki still remain the responsibility of MNZ. Regional Navigation Safety Bylaws are made under the Local Government Act.

These Navigation Safety Bylaws, which must not be inconsistent with Maritime Rules Part 91: Navigation Safety, have been widely promoted through written material and with the help of both paid staff and volunteers. Where specific issues occur, special publicity has been undertaken. Examples include the high-speed ferry lane and speed restrictions in Auckland Harbour, and the interaction between small craft and Cook Strait Ferries. Marlborough and Wellington regional harbourmasters have initiated awareness campaigns aimed at educating recreational vessel operators about the dangers of navigating in the vicinity of ferries and other ships.

Many regional councils have incorporated by reference the Collision Prevention Rules into their Navigation Safety Bylaws, thereby bringing all aspects of on-water behaviour under the one regulation.

The collaborative approach between the regional councils and MNZ has been effective in improving the behaviour of the large majority of pleasure boat skippers, which has been widely reported over recent summers. However, where there is a high level of congestion in popular places during busy periods over summer, the behaviour of some skippers remains alarming.

Many regional councils have provided financial support for the MNZ *Safe Boating New Zealand* DVD. Local knowledge modules of these regions are included in the DVD.

WATER SAFETY NEW ZEALAND (WSNZ)

WSNZ plays a leading role in water safety education. It has continued to promote safety through effective allocation of Lotteries Grants Board funding to all voluntary agencies in the water safety sector. The publication and distribution of a wide range of brochures and advice provided at no cost to the public is essential if one is to achieve a water safety culture within the community.

While being instrumental in promoting boating safety, particularly in small boats close to shore and on inland waterways, WSNZ is the leading national agency for the co-ordination of public safety for water-related activities.

A safety risk within the recreational boating community is the inability of participants to swim. This issue is being addressed by WSNZ and also in the ACC-led *New Zealand Drowning Prevention Strategy*.

In co-operation with Coastguard Education (CBES) and ACC, boating safety is being promoted through the BoatSafe programme.

WSNZ is undertaking a programme targeting the Māori community, which is over-represented in drowning statistics, including boating fatalities.

WATERSAFE AUCKLAND INCORPORATED (WAI)

WAI, Auckland Regional Council and the Alcohol Liquor Advisory Council have promoted lifejacket use and moderation regarding drinking when boating. The promotion was timed to coincide with America's Cup events.

Water safety messages to new settlers in New Zealand have been promoted in a variety of languages on radio and in written publications, with assistance from ACC.

In 2006, WAI introduced the Integrated Aquatic Programme into schools under the existing curriculum for students in years one to six. The programme has been developed in partnership with other water safety specialty groups and ACC.

In addition, WAI has an annual "Safe Summer" campaign for the region with Auckland Regional Council funding.

SAIL TRAINING

Every year the Spirit of Adventure Trust provides training in youth development and sailing for about 1,000 youths aged between 15 and 19 on ten-day voyages on the *Spirit of New Zealand*.

WATERWISE

Waterwise provides basic sailing and boating skills each year to 4,000 children aged from nine to twelve. The programme is run in association with Yachting New Zealand (YNZ).

YACHTING NEW ZEALAND (YNZ)

Each year, YNZ and its associated clubs provide sail training to around 2,300 people of all ages. While the emphasis is on sailing skills, safe practice in boats is an inherent part of all programmes. YNZ has registered basic safe boating and learn-to-sail courses for small craft as unit standards.

A further 7,000 school children take part in the YNZ "SailSafe" programme. SailSafe is a yachting awareness and water safety programme developed by YNZ for use in New Zealand primary and intermediate schools.

"Sailing... Have a Go!" is a programme offered to secondary schools throughout the country. It is designed to give students in years six, seven and

eight the opportunity to experience sailing in a safe and well-managed environment while having fun. Since the programme began in 2006, nearly 2,000 students have taken part.

YNZ provides the opportunity for school students and adults to gain sailing unit standards that have been registered on the **National Qualifications Framework** and are part of NCEA. Both the dinghy and keelboat programmes include safety, basic principles and on-water sailing.

Recommendation 3: Resourcing

The PBSAG report recommended additional expenditure of around \$1m per annum on the boating safety initiatives outlined in Recommendation 2.

The development and implementation of a safety awareness programme by MNZ was slow to get under way because of limitations on funding. Initially, MNZ was dependent on government funding to implement its recreational safety awareness programme. However, because of the demands placed on government to fund higher priority areas such as health and education, little funding was available to commit to the programme. So, in the summer of 2001/2002, MNZ's initial safety campaign was very limited in its coverage.

This began to change in the summer of 2002/2003 when MNZ negotiated sponsorship from TelstraClear and introduced a modest television campaign. The following year, 2003/2004, additional funding was secured from the New Zealand Community Trust, plus an additional \$100k from government, enabling a new television and radio advertising schedule to be introduced, along with a small direct-mail campaign. Product sponsorship from Ford NZ and Line 7 was also obtained.

In 2004/2005, MNZ formed a partnership with ACC, allowing the introduction of the "Stay on top with the weather" campaign. The Fairfax Group also supported the weather campaign with magazine and newspaper advertising, while Ramco and Yamaha supplied the major prize for the direct-mail campaign. Further promotion of weather forecast awareness occurred with the introduction of the 5-day outlook in May 2005.

In the 2003/2004 year, MNZ's campaign budget was approximately \$1.45m (excluding salary and other overhead costs), \$0.9m of which was derived from sponsorship. In 2005, the budget fell to around \$1.1m following the completion of the

3-year TelstraClear sponsorship agreement and a reduction in funding available from the New Zealand Community Trust. In 2006, sponsorship funding further reduced with Community Trust funding no longer being available and a major reduction in the level of funding from ACC.

Overall, the budgets of the last 2 years have exceeded that envisaged by PBSAG (around \$1m per annum). That said, the completion of the 3-year TelstraClear sponsorship programme, the difficulty in securing a replacement, and the one-year-at-a-time sponsorship approach of some funding organisations highlight the problems that reliance on sponsorship brings to the campaign planning process. The lack of certainty makes it extremely difficult to plan ahead and usually requires campaigns to be developed within a very short time. While this can be satisfying for staff when it all comes together, it is nevertheless not the most efficient way to run the programme.

Accordingly, MNZ is seeking, through the Ministerial-commissioned review of MNZ funding that is currently under way, a long-term, stable source of funding for future recreational boating safety programmes.

Recommendation 4: National co-ordination

The PBSAG report recommended:

that MNZ organise and facilitate a meeting among all recreational boating safety-focused organisations in order to establish a formal network to promote and co-ordinate recreational boating safety efforts in New Zealand.

This recommendation has been implemented. The NPBSF was established in 2000. The NPBSF meets twice yearly and provides national co-ordination for boating safety matters. It also provides technical advice to MNZ and government, both national and regional.

The NPBSF comprises representatives from all major groups within the recreational marine sector and from local and national government agencies involved in pleasure boating matters. The NPBSF has endorsed the main thrust of safety initiatives taken and has an important advisory role in future recreational boating safety initiatives.

Regional boating safety forums have also been established in the North Island and the South Island. Regional forums have led to closer co-operation between local communities, regional councils and MNZ. However, regional forums have

not been established in all localities. With time and increased co-operation, it is hoped to have nationwide coverage (provided adequate resources are available).

Recommendation 5: Vessel stability and flotation

The PBSAG report recommended:

that the MSA [now MNZ], as the regulatory body associated with recreational boating, work with the Boating Industry Association [now the MIA] and other interested parties to increase understanding of vessel stability and flotation issues amongst boat designers, builders and the boating community.

In a joint venture between the MIA and Coastguard, a compliance plate certification (CPC) scheme now ensures a voluntary standard for some 70% of small craft built in New Zealand. The CPC standard requires boats from 4.5 m to 8 m in length to have positive flotation, as well as meet a number of other requirements. This initiative has been in effect since 2004.

In a further initiative, MNZ, MIA and Coastguard have proposed that boats under 4.5 m should have not only positive flotation but the ability to float level even when inverted. Accident analysis has shown that in capsize accidents there are relatively few fatalities when the upturned vessel floats level. This allows people to retrieve safety equipment not accessible when the disabled craft floats with just the bow protruding.

One major company that manufactures aluminium dinghies and trailer power boats has successfully applied this standard to its under 4.5 m craft since 2004. Development of this initiative is still in progress and encouragement for all manufacturers to meet the standard is intended.

Recommendation 6: Practical vessel usage guidelines

The PBSAG report recommended:

that the [National Pleasure Boat Safety Forum] develops and promotes practical vessel usage guidelines.

Accident analysis in the period 2000 to 2005 has shown that using a small boat in conditions it was not intended for has contributed to accidents from time to time. However, it has not been a principal cause of loss of life.

Specific guidelines for usage have been considered at length, but given the extremely widely varying factors involved, all attempts to develop a useful document have been unsuccessful.

The following variables all have to be taken into account:

- the knowledge, capability and experience of the operator
- the design, size and condition of the vessel
- the area and environmental conditions where use is intended
- the weather and predicted weather
- the type of activity.

The appropriate use of small craft has been emphasised in many publications, including the free booklet *Safe Boating: an Essential Guide*, the *Safe Boating New Zealand DVD* and publications such as *Safety in Small Craft*.

There remains an aging fleet of boats (some wooden) that were built to basic standards during the economic upturn of the 1960s and 1970s. While some of these boats have passed their useful life and have been scrapped, many are still in use. Unfortunately, not all are fully seaworthy and, being very inexpensive, have great appeal to those who lack funds for a safer boat or for the safety gear that is even more necessary in these craft.

Recommendation 7: Vessel care and maintenance guidelines

The PBSAG report recommended:

that vessel care and maintenance guidelines be developed by the [National Pleasure Boat Safety Forum] and that these guidelines be widely disseminated to the recreational boating community.

These guidelines have not been specifically developed. Rather, the need for vessel maintenance has been emphasised in many publications, including the free booklet *Safe Boating: an Essential Guide* and the *Safe Boating New Zealand DVD*.

The PBSAG report did not support mandatory regular checks on pleasure boats, although it did express concern at the high number of vessel breakdowns.

While at least two recreational fatalities have resulted from using boats that have suffered a structural failure, or were in a poor state of repair, accident investigation and analysis has not identified vessel

breakdown as a significant causal factor in small boat fatalities.

However, in the 1960s and 1970s there was a large increase in the number of power and sail trailer boats constructed. Many of these were made of plywood, and most were home-built. If properly maintained, such craft pose no safety hazard, but where repairs have been made with inferior materials and suspect workmanship, the chance of a serious structural failure is high.

The MTA makes it an offence to maintain a boat in a way that causes unnecessary harm to other persons, or use a boat that is in an unsafe condition. A person was convicted of failing to maintain his boat properly after the boat sank following a capsizing when a crewman was drowned.

Many Coastguard callouts are to disabled craft, usually as a result of an engine or battery failure. The need to undertake preventative maintenance has been promoted widely in publications and at boating education courses, to try and minimise the number of incidents of this nature.

Recommendation 8: Launch wardens

The PBSAG report recommended:

that the Launch warden system be further developed and rationalised, as appropriate, under the control of the relevant authorities, working to consistent national standards.

This recommendation has been carried out.

Most regional councils have taken responsibility for the areas in their jurisdiction, with some electing to leave control of part of their waterways to MNZ. Some regional councils have staff members who are employed as enforcement officers. A number also have appointed honorary enforcement officers ("launch wardens") and, in many regions, continuing recruitment of these volunteers is taking place.

Three MNZ staff are employed in the recreational boating safety sector. These field staff, along with the maritime safety inspectors based in the main ports and safety auditors based in Tauranga and Christchurch, have delegated authority under the MTA to enforce its provisions in relation to recreational craft.

MNZ also has a regional network of volunteer safe boating advisors. These advisors have no powers of enforcement, but are accredited to provide safety advice to the boating public. Currently, about

220 advisors have been appointed throughout the country. Where regional authorities have taken jurisdiction for navigation safety, most areas welcome MNZ advisors, who liaise closely with the local harbourmasters and their staff to promote boating safety throughout New Zealand.

Subject to the availability of funding, MNZ intends to ensure that by 2009 all locations where recreational boating takes place have advisors who will ensure safety advice and local knowledge is available at all times. Where MNZ advisors and regional council volunteers are working in the same locality, a collaborative approach has proved very successful.

Consistency in national standards has been fully achieved. Where Navigation Safety Bylaws are in place, there must be no inconsistency with the Maritime Rules Part 91: Navigation Safety. The Collision Prevention Rule also applies to all vessels, along with the Marine Pollution Regulations. Most navigation safety provisions contained in the MTA apply to all small craft, both commercial and recreational.

Recommendation 9: Alcohol guidelines

The PBSAG report recommended:

that the issue of alcohol use whilst boating be the subject of further research to better determine the extent of linkage between alcohol use and boating safety, and that alcohol be the subject of a focused safety awareness campaign based on the outcome of the research undertaken.

This recommendation has been partially implemented, with more work still under way. Comprehensive research was undertaken in New Zealand along with initiatives being taken in other parts of the world. A 99-page report published by MNZ in October 2004 contained a number of options for consideration. Other jurisdictions, for example, the UK and Australia, have introduced maximum blood alcohol levels for skippers of recreational vessels. The amount of enforcement varies from place to place.

In 2005, the Ministry of Transport initiated a review of alcohol and drug use in the transport sector. The review is being conducted by the Substance Impairment Group and covers the land, air and maritime sectors.

The NPBSF made a recommendation to the Substance Impairment Group that:

- a maximum blood alcohol level be set for skippers of recreational vessels underway
- evidential testing by police be permitted following an accident or incident.

In the summers of 2005 and 2006, all Australian states and New Zealand joined in a campaign to educate skippers and their passengers about the effects of alcohol while boating. The campaign is being mounted under the Australia New Zealand Safe Boating Education Group umbrella. Information brochures were included in boating safety packs distributed widely in New Zealand during the 2005/2006 summer months.

Recommendation 10: Data collection

The PBSAG report recommended:

that MNZ take the lead in defining and co-ordinating the recording of recreational boating fatality and accident figures

and

that the collated information be made available to all organisations and individuals concerned with developing a recreational boating safety culture in New Zealand.

The report also recommended:

that the availability of this information be publicised and made available to academic and other researchers, that the data storage system be sufficiently flexible to provide a wide range of information, and that the system be capable of ongoing refinement.

This recommendation has been implemented, but the data programme will continue to be refined.

Every fatal boating accident from 1 January 2000 to 1 October 2006 has been reported and analysed by MNZ. A system whereby comprehensive accident data for every reported accident is collected has also been put in place. These accidents, involving over 120 fatalities to June 2006, have been extensively analysed and a number of possible safety measures applied to each. The results are contained in Part 3 of this review.

However, with an average of nearly 20 fatalities each year during the review period, having an accident investigator who specialises in recreational accidents may be appropriate. Recreational boating can be considered as much a specialist activity as fishing.

All MNZ accident reports are freely available on request. MNZ has also published summarised

reports of recreational boating accidents in book form (more recently in a quarterly publication), and are working to include the data on their website.

While every fatal accident is reported and investigated, the reporting of non-fatal recreational boating accidents rarely occurs unless serious injury or extensive rescue services are required. The requirement to report all accidents has been widely promoted, but with limited success.

Recommendation 11: Separation of activities

The PBSAG report noted that the group “supports and encourages local authorities in their continuing development of appropriate PWC management initiatives such as setting aside specific areas”, and recommended

that such initiatives be brought to the attention of the [National and Regional Pleasure Boat Safety Forums].

A number of regional councils have put in place inshore areas for specific use, or for designated types of small craft where, from time to time, high-density usage or incompatible activities take place. Aside from the many water-ski lanes throughout the country’s waterways, about ten such areas have been allocated. Maritime Rules Part 91 and regional Navigation Safety Bylaws are sufficiently flexible to allow authorities the ability to put in place any necessary measures for either part or all of the time.

Maritime Rules Part 91 modified the previous Water Recreation Regulations and made both water-ski lanes and reserved areas priority use areas. When not being used for a designated purpose, the area reverts to one where all normal navigation rules apply.

The “500 ton” rule

A number of incidents and one fatal accident have occurred during the past 6 years where there has been close interaction between ships and small craft in confined waters.

Maritime Rules Part 91: Navigation Safety and regional Navigation Safety Bylaws state that craft under 500 tons must not impede the passage of vessels over 500 tons in harbours and approaches as designated on the area chart.

There appears to be a widespread lack of understanding as to what “impede the passage” actually means to skippers of small craft, both recreational and commercial. There is also a

perception on the part of many small boat operators that they are safe, while the master or pilot of the ship considers them to be in significant danger due to their proximity to the ship.

In June 2006, the Auckland Regional Council indicated that it planned to clarify in its Navigation Safety Bylaw that the definition of “impede the passage” includes “any craft that is within an area 500 m ahead, or within 100 m at the side or stern of a ship over 500 tons”.

The introduction of this amendment to the maritime rules following recommendations from regional harbourmasters is under consideration.

Recommendation 12: Boat identification and registration

Considering the low direct safety benefits that boat identification and registration offer, the PBSAG report recommended:

that these options not be implemented on a national basis unless there is evidence in the future justifying implementation.

The PBSAG report noted that recent legislation allows for the identification of PWCs, and recommended:

that the PWC situation be closely monitored until safety related information compels a rethink and the need for further legislation evaluated.

PBSAG made this recommendation after considering the benefits that boat identification and registration contribute to safety.

This recommendation forms part of this review in Part 3 section 3.2.

Recommendation 13: Social implications

The PBSAG report recommended:

that the social and financial impacts on both individuals and groups of any safety management options be considered in the final design and implementation of these options.

In 2000 and 2001, the need for national safety guidelines for the operation of traditional paddle craft, or waka, was recognised. Safety standards across the country were generally very good but, particularly with the emerging sport of waka ama competitions, the need for consistent standards was accepted.

Following two hui of Māori leaders in the marine sector hosted by MNZ, a set of safety guidelines was developed for the various classes of waka. Best practice that had evolved from centuries of waka use and development was incorporated into the document. Most participants have adopted the guidelines that are appropriate to their operation. In time, further development of the guidelines is planned.

More importantly, the guidelines provide a sound basis for the safe operation of all small craft that have traditionally been used for gathering seafood.

Safety initiatives targeted at ethnic communities include:

- Coastguard Dayskipper courses provided free of charge on marae
- provision of boating safety question/answer sessions on Chinese radio stations
- appointment of MNZ safe boating advisors in local ethnic communities
- translation of basic safety information into a variety of languages
- subject to funding being available, voicing over the free MNZ *Safe Boating New Zealand* DVD in a variety of languages.

Part 2

Effectiveness of the strategy



Introduction

This part examines the impact of the initiatives that were introduced following the PBSAG report published in December 1999.

Analysis of the statistical data collected from all fatal accidents from 2000 to 2006 is presented in the accompanying graphs.

The overall boating fatality rate is shown, not only in the number of pleasure boat fatalities, but also against the increasing number of pleasure boats. The causal factors are analysed, including the presence or absence of a number of possible safety options at the time of the accident. Demographic data is also examined.

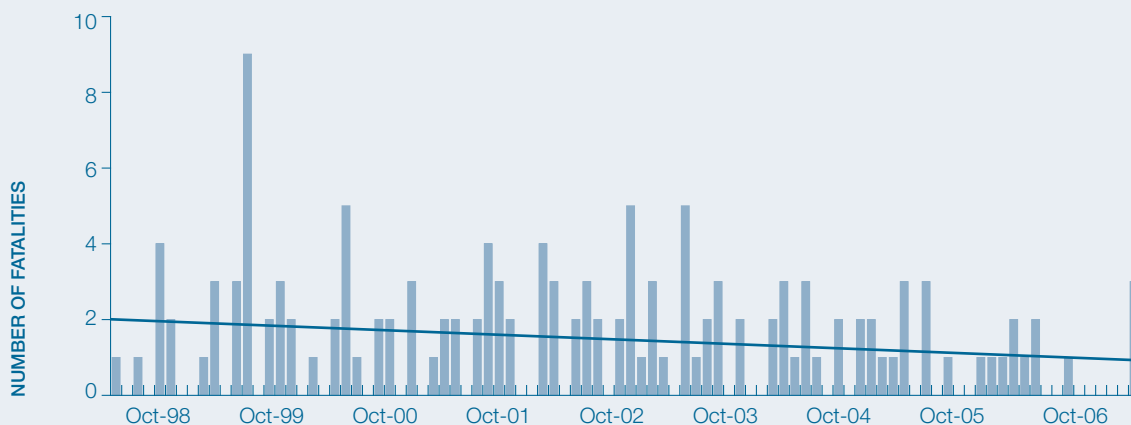
2.1 Statistical analysis

Recreational boating fatalities

There has been a steady decline in recreational boating fatalities since October 1998³ (figure 1 below).

In particular, the average of 12 fatalities over the 3 years from October 2003 to October 2006 compares very favourably with the average of 21 fatalities over the preceding 6 years.

Figure 1: Recreational boating fatalities October 1998 to October 2006



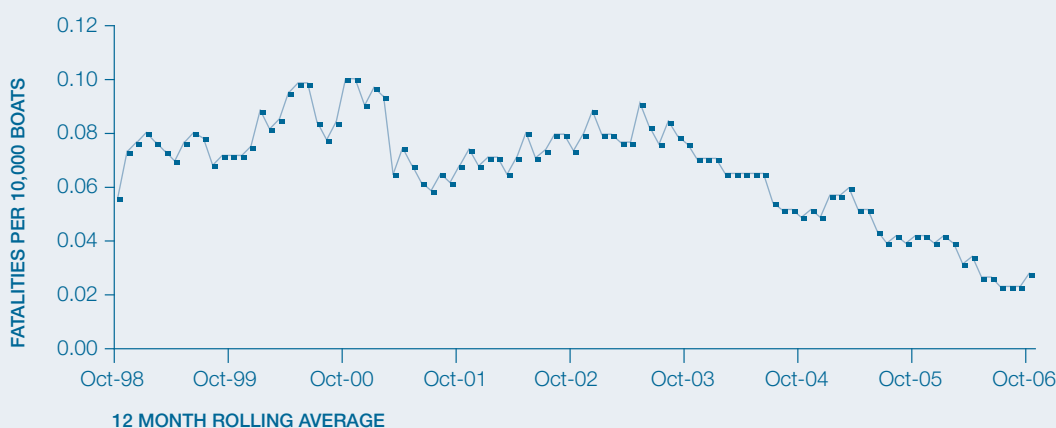
This downward trend is even more pronounced when estimated increases in the pleasure boat population are considered⁴.

3 This date range is larger than the 1 January 2000 to 30 October 2006 sample used to analyse actual accidents in detail. The larger range has been used in this instance to provide a better context of recreational boating fatalities over time.

4 The vessel population data is based on the original PBSAG survey data (period 1994–1997), which is adjusted annually based on estimates provided by PBSAG.

The following graph demonstrates the fatality rate per 10,000 pleasure boats between October 1998 and October 2006.

Figure 2: Recreational boating fatality rate



Accident analysis

The analysis of the 123 recreational boating fatalities between 2000 and October 2006 has identified the prime contributing factors involved. Further analysis of the effectiveness of various safety options has provided a basis for future safety strategy.

METHODOLOGY

The timeframe for the analysis was 1 January 2000 to 30 October 2006. Out of 131 recreational boating fatalities, eight were not considered, as they did not come within the jurisdiction of the Maritime Transport Act (including death by natural causes, self-inflicted death, and death occurring on a non-navigable craft, such as a body board).

Causal factors were then assigned to the remaining dataset of 123 fatalities from such sources as the original investigator, MNZ accident reports, coronial files, police reports and New Zealand Health Information Service comments. To ensure consistency of application, the causal factors were assigned by an experienced recreational boating

investigator using a standardised qualitative method of coding. The results were then subject to separate review and confirmation by a MNZ analyst.

Initially, the causal factors including equipment carried in each accident were listed as being present or not. MNZ then considered the most significant factors in more depth, assigning values from a rating scale between zero and ten. A ten was assigned when it was considered that a safety intervention, such as PFD or communications, would definitely have prevented the fatality, whereas a zero rating indicated that the intervention would not have been effective at all.

The specific assumptions and factors considered when assigning the values will be discussed in the various subsections dealing with the key contributing factors. It should be noted that in many fatal accidents, any one of several measures could have prevented loss of life. For example, either wearing a lifejacket or having fitted level flotation in the boat may have been effective.

“Accidents are *not* the result of deliberate reckless behaviour, but of a lack of safety awareness and knowledge.”

Table 1: Fatal accidents analysed 1 January 2000 to 30 October 2006

YEAR	FATALITIES	FATAL ACCIDENTS ⁵
2000	25	20
2001	20	19
2002	23	19
2003	18	13
2004	18	16
2005	13	13
to Oct 2006	6	5
Totals	123	105

The results

FATAL RECREATIONAL BOATING ACCIDENTS BY TYPE

The analysis showed that 63% of fatal boating accidents over the period were due to capsize. Capsizes typically occurred on smaller vessels, with 42% occurring on dinghies, and 24% on either sea or river kayaks.

These vessels also accounted for half of the next most commonly occurring fatal accident type,

person overboard, with 28% of person-overboard accidents occurring from dinghies and a further 23% from either sea or river kayaks.

Groundings and collisions were the next most common accident type, with each accounting for 7% of fatal accidents over the sample period. In contrast to the patterns of capsize and person-overboard accidents, 86% of groundings and 58% of collisions involved power vessels. It is also noteworthy that PWCs accounted for the remaining 42% of accidents involving a collision.

⁵ Note: All accidents during the period were able to be analysed.



“63% of fatal boating accidents over the period were due to capsizes.”

Figure 3: Fatal recreational boating accidents by type

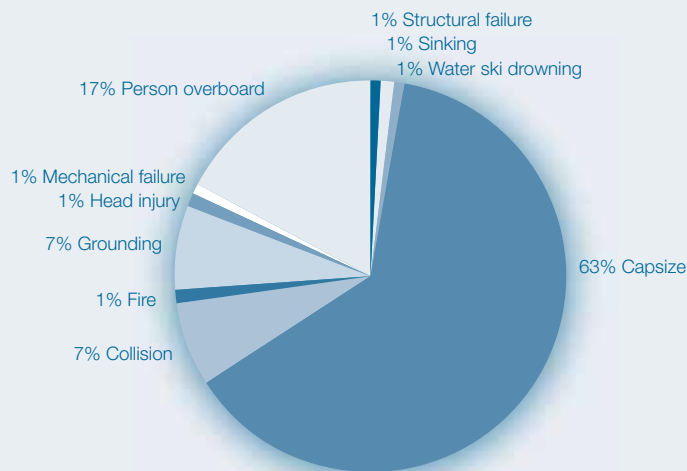


Figure 4: Fatalities by boat length

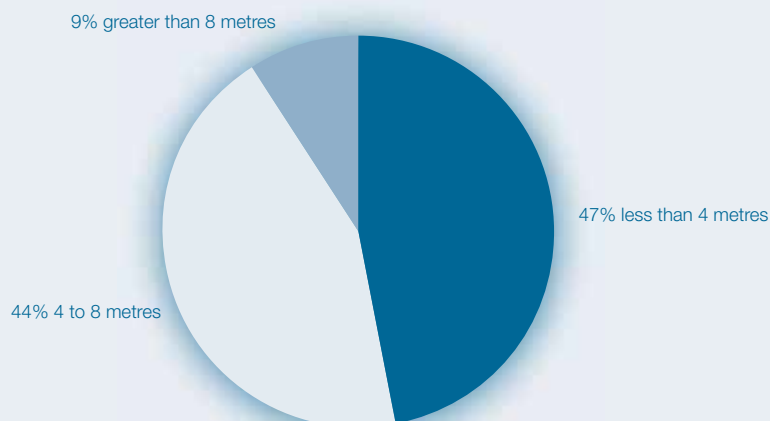


Figure 4 shows that smaller craft continue to dominate fatal accident statistics, with 47% of fatalities occurring on craft less than 4 m in length, and 44% occurring on craft between 4 and 8 m. Larger craft account for 9% of the recreational boating toll.

Figure 5: Fatalities in boats under/over 6 m

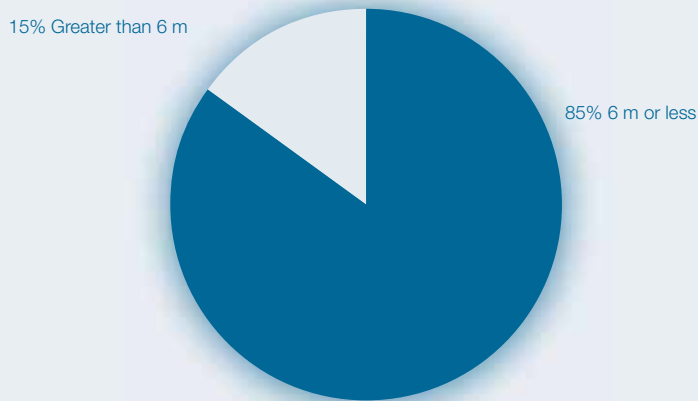


Figure five shows that smaller boats continue to dominate fatal accident statistics, with 85% of fatalities occurring on boats less than 6 m in length. It is very notable that 75% of the fatalities on boats 6 m or less were caused by capsizing. Of the 18 fatalities that occurred on boats over 6 m in length, only 28% (five fatalities, three accidents) involved capsizing.

The most common accident type for boats over 6 m was person overboard, which was responsible for 39% of the fatalities. This contrasts to person overboard accidents accounting for 10% of the fatalities in boats 6 m or less in length.

Causal factors

LIFEJACKETS

The analysis showed that at the time of the accident, lifejackets (PFDs) were carried on board in 50% of cases⁶, and worn by only 29% of victims. In recognition of the different circumstances of each

accident, the likely effectiveness of lifejackets in preventing a fatality after the accident was assessed on a scale of zero to ten.

Factors considered when making this judgement included:

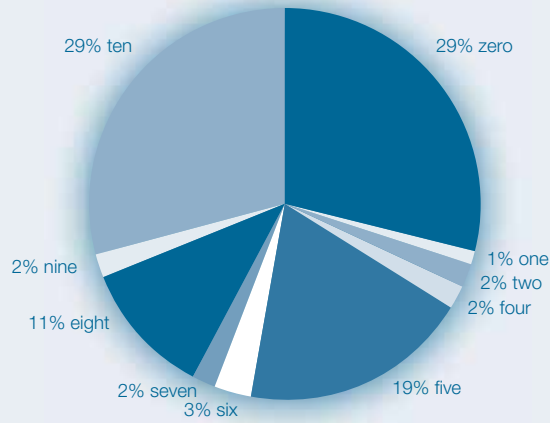
- whether the deceased was wearing a lifejacket
- the cause of the death (a lifejacket would not prevent immediate death from high-impact injury, for example)
- the victim's proximity to shore
- whether rescue was possible
- whether any survivors of the accident were wearing lifejackets when the victim was not
- weather and sea conditions (for example, a kayaker held under water).

Using these criteria MNZ determined that lifejackets, if worn, would have had a high likelihood (rated five or higher) of preventing a fatality in 66% of accidents.

“Smaller boats continue to dominate fatal accident statistics, with 85% of fatalities occurring on boats less than 6 m in length.”

⁶ Note that in March 2003, about halfway through the period over which these accidents were investigated, it became compulsory to carry a lifejacket for each person on board.

Figure 6: Likelihood rating of lifejacket effectiveness preventing boating fatality



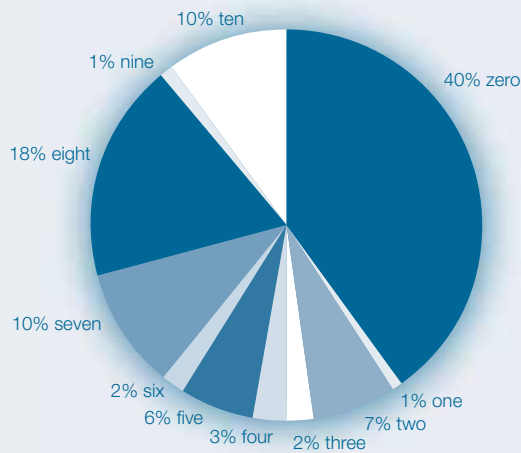
WEATHER AND WATER CONDITIONS

The condition of the weather and the water (sea, river or lake) were identified as factors in 72% of fatalities, with the assessment that these were significant contributory factors (rating of five and over) in 47% of recreational boating fatalities.

Factors included in this assessment were:

- the action of rapids or water flow in rivers
- wave action on bars
- wind strength
- sea state
- tidal flows and currents.

Figure 7: Likelihood rating of weather/water conditions contributing to fatality



COMMUNICATIONS

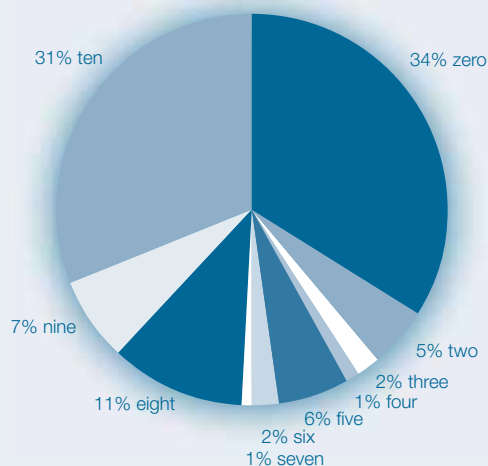
The analysis identified that **effective** communications equipment was carried on board the vessel in 29% of recreational fatalities, but was accessible following an accident in only 15% of cases.

Effective communications equipment varies with the circumstances at the time but can include flares, VHF radio, emergency position-indicating radio beacon (EPIRB), cellphone or torch. The effectiveness of communications⁷ equipment, if it had been available in an accident, was assessed as being likely (with a rating of five or higher) to have prevented 58% of fatalities during the survey period.

Factors considered when making this judgement included:

- how quickly death occurred (immediate drowning cannot be prevented by communications)
- the distance from shore and observers
- radio coverage
- cellphone coverage
- whether other craft were near by
- the availability of on-water or helicopter rescue services
- day or night visibility (for visual communication)
- the ability of the victim to use communications (an infant or intoxicated person could not).

Figure 8: Likelihood rating of effective communications preventing boating fatality



FITTED FLOTATION

The analysis of fitted vessel flotation concentrated on boats 6 m in length or less⁸, as boats of this size are much more vulnerable to capsize than larger ones. While 47% of this size of boat (39% of total pleasure boats) had fitted flotation, in most cases it was considered less effective due to the number of boats that floated bow-up after capsize. Retrieving safety and communications equipment is extremely difficult in these circumstances. In a number of accidents the boats sank because they had insufficient fitted buoyancy.

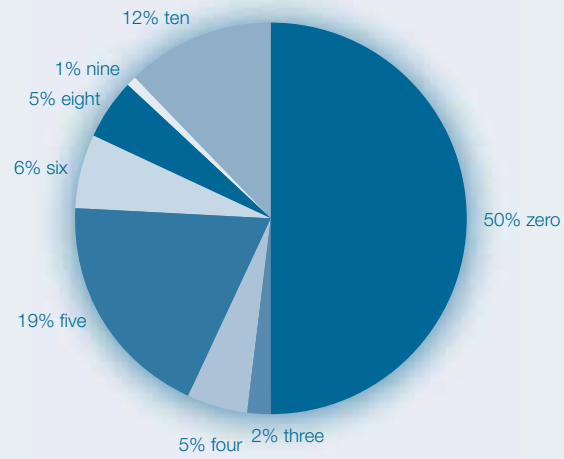
For these reasons, each accident was examined to assess the possible effect of fitted flotation that would have kept the boat level, even when inverted. Such “level flotation” would provide opportunities to right the boat and bail it out, or to retrieve safety and communications equipment even when it is not possible to right the boat.

The impact of having fitted level flotation was rated on a scale of zero to ten, with ten being certain prevention of a fatality in each case. Fitted level flotation was assessed as being likely (a rating of five or higher) to have prevented 43% of fatalities during the survey period.

⁷ Refer to Appendix 6 for the NPBSF proposal on effective communications.

⁸ 86% of fatalities in the sample period occurred on vessels of 6 m or less.

Figure 9: Likelihood rating of fitted level flotation preventing boating fatality



“The survey identified the average age of death as 44 ... and 95% of recreational boating victims were male.”

ALCOHOL

Alcohol was included only when the blood alcohol level could be measured (by a pathologist, after a fatality), or where drinking alcohol was revealed by the accident investigation or admitted by the skipper or crew. The analysis could definitively demonstrate that alcohol had been consumed in 18% of recreational fatalities. This is considered to be a conservative figure, given legislative constraints on testing the blood alcohol levels of recreational boats⁹.

BOAT REGISTRATION

The analysis considered that boat registration is not a significant factor in recreational boating fatalities, with only 3% of fatalities possibly being prevented if the boat had been registered. The possible impact of registration was considered for all powered craft, but not those manually or solely wind driven.

Where there was the possibility that registration may have led to an early intervention to correct bad behaviour, this was simply recorded as positive. The effect of having clear identification on a boat, thereby encouraging the skipper to improve behaviour, was also considered and where possible it was noted as a causal factor of the accident. Few, if any, boating fatalities in the period were the result of intentional misbehaviour.

SKIPPER LICENSING AND/OR COMPULSORY EDUCATION

The analysis considered that licensing and/or compulsory education might have reduced the likelihood of fatality in 12% of the accidents experienced during the survey period. Licensing and/or compulsory education was assigned as a causal factor when the behaviour or lack of safety equipment on board at the time of the accident indicated a reasonable chance that education may have led to safer behaviour or decisions. Examples included the lack of knowledge of the collision prevention rule, breaches of navigation safety rules, and failure to obtain a weather forecast. Errors

of judgment where the operator or skipper was clearly experienced, or had attended boating safety training, were not included. An example is where an experienced skipper capsized while crossing a familiar bar.

Safety awareness and basic safety messages without a formal assessment were not considered as “education” in this context. Education was defined as a compulsory education course followed by assessment prior to issuing a certificate of competency to operate as a skipper. While such an initiative was considered for all vessels, it should be noted that no international jurisdiction requires skipper licensing for all human or solely wind-powered vessels.

Demographics

The demographic profile of recreational boating victims has been the subject of a recent MNZ analysis. The survey period was from 1 July 1999 to 30 June 2004 and initially included 101 recreational boating fatalities.

The survey identified the average age of death (across the whole sample group) as 44, with a range from seven to 90 years. In total, 95% of recreational boating victims were male. European males aged between 45 and 54 were the single largest demographic group in recreational fatalities, although Māori and Pacific peoples were overrepresented compared to their representation in the general population.

While the absence of credible ethnicity figures for boating participation makes it difficult to establish categorically whether any ethnic group is overrepresented in fatality rates, the following graph gives an indicative comparison across all groups. When compared to the general population, Māori are significantly overrepresented in recreational boating fatalities, while Pacific peoples are marginally overrepresented. The fatality rate for Europeans and Asians compares favourably to the census data.

⁹ Current legislation allows evidential testing of living people only if it relates to driving offences.

Figure 10: Ethnicity comparison for recreational boating fatalities



Summary of the statistical analysis

- Fatalities in relation to boat numbers have declined to about half of the 2000 figure, from about 22 fatalities a year to an average of 12 over the last 3 years.
- Wearing lifejackets would have had a high likelihood of preventing a fatality in 66% of accidents.
- Effective communications equipment, if available, was likely to have prevented 58% of fatalities during the survey period.
- Weather conditions (including the sea or river conditions) were significant contributory causal factors in 47% of recreational boating fatalities.
- Fitted level flotation was highly likely to have prevented 43% of fatalities during the survey period.
- The analysis definitively demonstrated that alcohol was a factor in 18% of recreational fatalities, but this is considered to be a conservative figure.
- Licensing and/or compulsory education might have prevented 12% of the fatalities that occurred during the survey period.
- Boat registration is not a significant factor in preventing recreational boating fatalities, with 3% of fatalities possibly being prevented if the boat had been registered.
- European males aged between 45 and 54 were the single largest demographic group in recreational fatalities, although Māori and Pacific peoples are overrepresented in terms of the general population.

Conclusions

- The increasing use of lifejackets has resulted in lives being saved, and more fatalities will be prevented if more people wear lifejackets.
- The need for some form of communication that will work after an immersion accident has now become as significant as the need to wear a lifejacket.
- Weather (swell/wave action or river state) continues to be a major cause of accidents that have fatal consequences.
- Alcohol is indicated as a significant cause of accidents and fatalities, but the inability to collect hard evidence results in this being underestimated as a causal factor.
- Fitting all new boats under 6 m in length with level flotation would reduce the number of fatalities.
- Males in boats under 6 m in length, often going fishing, continue to be those most at risk.
- The effectiveness of either compulsory skipper licencing or vessel registration would have minimal effect on the number of fatalities.
- Few, if any, fatalities were the result of intentional misbehaviour.

2.2 The impact of safety initiatives

This section considers how effective each of the individual PBSAG initiatives has been in promoting improvements in boating safety.

It is, of course, very difficult to determine the relative contribution that each initiative has made to lowering the number of boating fatalities. Perhaps all that can be said with certainty is that as a package of measures, the combined effect of all initiatives has been extremely positive on boating safety and on the behaviour of pleasure boat skippers, most of whom display a responsible attitude on the water.

Safety awareness

For the last 4 years, MNZ has had its campaigns independently assessed by a market research company to measure their impact on the target audience – males aged 15-74 years.

Overall, MNZ's campaigns, along with the work done by others in the water safety sector, have proved very successful in getting the key safety messages across to the target audience. They appear to be causing desirable behaviour changes, although such changes are notoriously difficult to measure without considerable (and expensive) research.

WaterSafety NZ (WSNZ) has also had its campaigns assessed. While the focus for WSNZ is on preventing drowning through safe practices in and around water, its messages are also applicable to boating. There has been a significant fall in the number of drownings in New Zealand in the past year.

Assessment of last year's campaigns conducted by MNZ was carried out by research agency Colmar Brunton as part of a telephone survey over a period of 2 weeks in April 2006. Using a sample size of 1,000, the company made the following findings.

- There were very high levels of recall of the boating safety messages, with over 89% of the population having seen one or more of the television advertisements (79% last year).
- 79% of New Zealanders recalled the lifejacket advertising (similar to 2004 but significantly higher than in 2003), while 76% recalled the new marine weather forecast campaign – a very good result.
- 26% of boat owners said the weather campaign was a useful reminder to check the marine forecast; 11% said they would now start checking on a regular basis; and 10% would start to check the forecast before going out. Around 50% of

boat owners say they check the marine weather forecast before going boating.

- 55% said the lifejacket advertising was a useful reminder, but wouldn't change their behaviour; 12% said they would carry lifejackets on a more regular basis; and 5% said they would start to carry or wear a lifejacket. The vast majority of boat owners (92%) claim to carry lifejackets on board.
- Radio advertising recall was at 14%, which is pleasing given the limited advertising programme.

In reporting these results, Colmar Brunton notes: "Self-reported behaviour change as a result of self exposure to advertising is insufficient to measure the success of a campaign, as there is widespread denial of the influence of advertising. In this context of self-reported behaviour change, if 12% of boat owners say that they will carry or wear a lifejacket on a more regular basis as a result of the advertising, and a further 5% say that they will start to carry or wear a lifejacket as a result of the advertising, it is relatively safe to assume that the actual effect of the campaign is somewhat greater. Similarly, if 11% percent of boat owners say they will check the marine weather forecast on a more regular basis as a result of the advertising, and a further 8% will start to check the marine weather forecast as a result of the advertising, then the actual impact could well be greater."

It should also be remembered that "10% of boat owners" represents over 30,000 people.

Anecdotal evidence consistently indicates an improved safety culture in regard to lifejacket usage:

- Surveys conducted by regional Environment Waikato harbourmasters and safe boating advisors throughout the Waikato Region indicate 96% compliance with the requirement to carry lifejackets. (The most recent survey of 800 pleasure boats in Bay of Plenty found 99% compliance with carriage requirements.)
- Observations and anecdotal reports from Coastguard vessels, boating club officers and the public universally indicate noticeable increased wearing of lifejackets in all areas, as high as 50% in some reports.
- Industry sources have reported increased sales of lifejackets, well beyond what could be expected from the number of boat sales.

However, while the trend is towards increased carrying and wearing of lifejackets, only a small proportion of tenders (dinghies used for transport to and from anchored larger craft) carry lifejackets.

Fatalities when operating these craft have become more common.

In summary, the results of the research are very encouraging and, along with anecdotal evidence, strongly suggest that the safety message is being taken on board by most boaties. That said, it must be acknowledged that behavioural change takes time to achieve, and ongoing reinforcement of the message is necessary to secure long-term and permanent change. It is encouraging to note that the fatality rate has continued to decline since the summer of 2002/2003, the summer when MNZ's safety campaigns first began to gain traction.

Enforcement

Many offences on the water relate to provisions in the Navigation Safety Rules. These rules are incorporated into regional bylaws, and penalties are available.

In most cases it has been found that the requirement to attend an interview with an officer at MNZ or a harbourmaster has a major impact. Often, this alone is sufficient reminder and no further action

is necessary. In other cases, the skipper who finds that a fine or prosecution is a possibility is often very amenable to attending an educational course such as Coastguard Boatmaster.

Increasing numbers of regional councils are introducing infringement notices. This is more efficient and cost-effective than taking prosecutions under the Maritime Transport Act (MTA).

Regional harbourmasters and their staff have reported that behavioural attitudes are still a cause for concern, particularly in relation to speed close to shore or to other vessels, and small craft operating too close to ships in harbours and approaches. In the case of interactions between ships and small vessels, there is emerging data to suggest that most often this is a lack of awareness of the risk that exists near ships rather than deliberate misbehaviour.

Although a prosecution or other penalty may be appropriate following an offence, the effectiveness of this action, which is very costly in both human and financial terms, has to be measured against how many people become aware of the outcome. This is totally dependent on media interest, which quickly



wanes after any event. Therefore, having an active media policy is clearly a necessity for all jurisdictions that undertake prosecutions.

Two factors are, however, impediments to greater enforcement. First, only council enforcement officers can issue fines under Navigation Safety Bylaws, and neither police nor MNZ staff are permitted to administer bylaws without specific delegation of this function from a harbourmaster.

Second, the cost of enforcement action nearly always outweighs the financial gain in terms of the level of fines imposed, with any fines from prosecution action going to the consolidated fund. The cost of prosecution is typically some thousands of dollars, aside from considerable time and effort from regulatory enforcement staff. This impediment can be largely overcome with a variety of enforcement options that can best suit the situation.

Infringement notices (“instant fines”) have proved an effective deterrent in regulating minor road traffic offences such as slightly exceeding speed limits or parking incorrectly. More widespread use of this tool against boating offences such as not having the correct lights, not carrying lifejackets, not complying with speed restrictions, and other breaches where prosecution is not warranted, is likely to have a significant effect on the attitude of some skippers.

There is, however, a benefit from prosecutions in terms of the impact court action and penalties have on other pleasure boat skippers. Publicity when the facts surrounding prosecution and the penalties imposed are reported in the media results in skippers who more readily understand their responsibilities under the MTA and other legislation.

Education

Education of boat operators falls into two categories:

- formal, where courses are presented by tutors, either in the classroom or on the water
- informal, where people learn from self-study using written material, DVDs, or casual advice and training from other boaties.

(Learning from television or radio advertisements, billboards and signage at launching ramps is “safety awareness” rather than education.)

The principal provider of formal boating education courses and training for the recreational boating community is Coastguard Boating Education Service (CBES), a wholly owned subsidiary of Coastguard New Zealand. This organisation sets

standards, conducts examinations and co-ordinates the provision of boating education courses.

Formal education is also undertaken by Yachting NZ through clubs; by Underwater NZ in conjunction with diver training; by the Kiwi Association of Sea Kayakers; and by a number of other organisations involved in water safety.

The PBSAG report recommended that the impact of education initiatives be measured against safety targets, including fatalities. While there has been a marked reduction in fatalities, increasing numbers have attended courses. Over the past 6 years, there has been an increase of about 30% in the number of tutors providing Coastguard courses, and the number of venues has increased by about 40%. In 1998, 140 tutors delivered courses at 185 venues. In 2004, 180 tutors provided education at some 235 venues. The number of students has increased by 41%, from 9,800 to 14,000.

The number of participants in courses other than those administered by CBES has remained relatively constant.

Anecdotal reports from events such as boat shows and similar community events indicate that the proportion of people who have received some level of formal safety education is rising. It is also safe to assume that each person who attends a course or receives training passes some of the information on to families and associates.

Informal education and safety awareness messages, such as the MNZ television campaign on lifejacket wearing, have provided safety awareness and education to almost every adult in New Zealand.

These figures must be considered in the context of an additional 15,000 craft entering service each year along with an estimated 25,000 newcomers to boating.

Pleasure boat design and construction

Technological advances in design, construction and materials have resulted in safer, more reliable craft. Discussion concerning the establishment of a national standard for small craft design and construction incorporating both the MIA/Coastguard compliance plate certified initiative and maritime rules for design and construction is in the planning stages.

Older craft often do not have fitted positive buoyancy, and the upgrading of such vessels at reasonable cost is a challenge that lies ahead for both regulators and industry.

National co-ordination

The guidance from the 6-monthly meetings of the NPBSF, and the regional pleasure boat safety forums, provide a basis for co-operation and the promotion of key safety messages consistently across the sector. Consultation with all members and a close working relationship with not only NPBSF members but with all groups within the sector have been fostered and have contributed significantly to the promotion of a cohesive national safety strategy and best practice.

The Harbourmasters' Special Interest Group, where all harbourmasters meet annually, ensures that Navigation Safety Bylaws remain consistent with each other and with Maritime Rules Part 91. Emerging issues are discussed and, where appropriate, recommendations are made to amend Part 91 or other legislation.

The impact of co-ordinated campaigns, where uniform, agreed safety messages are promoted by all agencies has been noted by other jurisdictions. Where there is no co-ordinated national strategy, it appears that safety messages, no matter how relevant, have less impact on the boating public with a corresponding absence of any reduction in the number of boating fatalities.

Rescue services

Since 1 July 2004 the Rescue Coordination Centre New Zealand (RCCNZ) has been sited at Avalon, Lower Hutt, co-located with the Maritime Operations Centre (MOC). RCCNZ is responsible for co-ordinating Class III search and rescue (SAR) operations. These are SAR operations associated with:

- an activated emergency locator beacon
- a missing or distress aircraft

- a missing or distressed surface vessel requiring the use of national or international civil or military resources, or co-ordination with other states, or
- an operation that began as a Class II SAR but where responsibility has transferred by mutual agreement from the NZ Police to the RCCNZ.

The MOC provides VHF and MF/HF radio services including the monitoring of distress and safety frequencies. Both are 24/7 operations. MNZ is accountable for RCCNZ and MOC, but Kordia has a contract with MNZ to provide the MOC services. To conduct effective SAR co-ordination and rescue operations RCCNZ and MOC are required to work closely with local marine radio stations and with SAR rescue units including units from NZ Coastguard and the aviation industry, eg helicopters and fixed-wing assets.

The NZ Police have responsibility for co-ordinating Class II SAR operations. These are operations that can be carried out efficiently and effectively by the police, with or without the assistance of departments or persons outside the police, and include operations on land, lakes, rivers and coasts.

Safe boating advisors

Development of the system of voluntary safe boating advisors by MNZ has been possible only since MNZ had sufficient resources to employ two additional full-time recreational boating staff members in 2004/2005. There are currently about 220 volunteer advisors who assist with the promotion of boating safety at launching ramps, boat shows, fishing competitions and a range of other community events.

Advisors are appointed under Maritime Rules Part 91. Launch wardens were appointed by the Ministry of Transport under the Water Recreation Regulations, which are no longer in force.

“Informal education and safety awareness messages, such as the MNZ television campaign on lifejacket wearing, have provided safety awareness and education to almost every adult in New Zealand.”

Many regional council harbourmasters have both paid and volunteer staff assisting with safety advice and enforcement. There is good acceptance of advice by a very large majority of the boating public.

Alcohol guidelines

Alcohol has contributed to some fatal accidents. It has been a prime cause in about three fatal accidents in each of the past 2 years, and a contributor in other cases. In 2004, the 99-page “Alcohol and recreational boating” report issued by MNZ concluded that alcohol was the prime causal factor in about 15% of fatal boating accidents and contributed to a further 15%.

Most Australian states allow evidential testing of boat operators for alcohol, and statistics there indicate that alcohol contributes to 30% of boating accidents across all states. The Australian figures are consistent with USA and Canada, where evidential breath testing is also permitted. Almost all European countries have adopted legislation making it an offence to operate any vessel while affected by alcohol.

However, the analysis of accidents in New Zealand over a 7-year period indicates that alcohol use is involved in about 10% of fatal accidents. This figure must be considered in the context of the inability of any authority to measure the blood alcohol levels of those involved in an accident.

Alcohol sampling can be undertaken only on deceased persons, and unless this is done soon after death, the results are unreliable. Other evidence of alcohol consumption is limited to observation of behaviour and reports by those involved as to how much alcohol was consumed.

The NPBSF has made a formal recommendation to the Ministry of Transport that “a maximum blood-alcohol level be introduced for skippers of recreational craft that are underway, and that testing by police be permitted following any accident or incident”. This initiative is now under consideration as part of a study into alcohol and drug use in transport.

Data collection

Since 2000, MNZ has made a concerted effort to collect as much data as possible, particularly in relation to fatal accidents. Investigations have looked in much greater depth at accidents and the underlying causes wherever possible. This has been complemented by ensuring as much consistency as possible in assessing information and reaching conclusions.

The results provided a greater level of confidence on which to base recommendations and safety strategy than previously existed.

While all fatal and serious injury accidents are investigated, only a small proportion of non-injury accidents are reported. Resources to investigate such accidents are limited.

Ethnic considerations

Ethnicity data is now routinely collected for all accidents that are investigated by MNZ.

It is estimated that Māori represent less than 15% of the total boating population, but 21% of boating fatalities are Māori. In the 2004 calendar year, almost 50% of fatalities were Māori.

While relatively small numbers can result in misleading statistics, there is sufficient data to suggest that Māori are overrepresented in fatality statistics. The reason for this is not clear, but initial indications include lack of safety equipment such as lifejackets and any form of communication equipment as causal factors. Often the boat and other equipment are in a poor state of repair indicating that economic pressures may be implicated.

People from ethnic minorities are starting to become more common in small pleasure craft, particularly in the Auckland region, where about a third of the population is non-European. Many are not fluent in English, and it is becoming apparent that there is a need for safety advice in a range of languages.

Waka safety guidelines were developed in 2001 and 2002 by the waka community working alongside MNZ. The effectiveness of this programme is clearly apparent with many waka ama clubs having embraced the guidelines in their safety procedures. Furthermore, the guidelines have introduced a safety culture into the community where boating is common practice, particularly in the gathering of kaimoana.

2.3 How effective has the strategy been?

The PBSAG initiatives began to be implemented in 2000/2001, but had limited effect on pleasure boat fatality statistics until carrying lifejackets became mandatory in March 2003 and a co-ordinated, national promotion campaign, including television advertising, was initiated targeting lifejacket wearing. Since then, there has been a significant, steady reduction in the annual boating death toll. During the same period there has also been a noticeable increase in boaties carrying and wearing lifejackets.

The past 4 years have seen unprecedented promotion of safety measures to the boating public. These measures have been made possible only by the availability of funding, much of which has been on a year-by-year basis from gaming funds and sponsorship. The need for secure long-term funding for the sector cannot be overstated.

It is not possible to single out any one safety initiative that has been instrumental in achieving the reduction of deaths during boating-related activity. Increased safety awareness has been achieved through the promotion of effective, practical safety measures using the widest possible range of media. However, the effectiveness of safety messages alone is unlikely to have achieved the reduction in deaths to date without corresponding improvements in the design and construction of boats, improved and less expensive methods of communication, increased enforcement, increased and better co-ordinated response to vessels in distress, and greater opportunity for boating education.

The effectiveness of a structured approach, where all national participants in the sector promote co-ordinated safety messages to the boating community, appears to have resulted in a clear understanding of critical risk factors in the minds of the boating public.

Increased efforts to collect data and investigate accidents fully, particularly fatal accidents, has provided much better evidence than in the past and has given us increased confidence on which to base safety initiatives.

In spite of fewer deaths annually, the number of reported accidents has not fallen. While increasing boat numbers may to some extent account for this trend, there is clear evidence that further loss of life and injury can be prevented. In particular, there has been an emerging pattern of five major contributors to boating fatalities:

- failure to carry, or to wear, lifejackets
- inability to communicate distress effectively following an immersion accident
- bad weather
- excess consumption of alcohol by some small boat users
- lack of level flotation in small craft that have swamped or capsized.

Initiatives to address these issues would appear to have the greatest impact on safety.

Environmental factors such as weather and sea or river conditions are major factors in fatal accidents. Gains in terms of a marked reduction in fatalities are likely to be lost without continuing promotion of basic safety messages.

The PBSAG report noted that education initiatives should not be measured solely against fatality numbers. While there has been a marked decrease in fatalities, poor boating behaviour by a minority of skippers in some busy areas remains a cause for concern. Principal issues include excessive speed close to other craft, people and the shore, and a lack of awareness of the dangers of sailing close to large ships in confined areas.

Part 3

Future options



3.1 Identifying future options

While it is apparent that the PBSAG safety strategy has met with a significant level of success in reducing fatalities, there is not the same reduction in the number of reported accidents. It is important to consider, in light of the experience from 2000 to 2006, what new initiatives might be introduced to ensure that the recreational boating sector's safety record continues to improve.

In 1999, the PBSAG report identified some of these safety options. Advances in technology and better information available since the 1999 report suggest new options, or have altered the cost-effectiveness of others. In addition, changes from 2000 to 2006 in the relative importance of causal factors that contribute to injuries and fatalities indicate that new initiatives to tackle those factors may now be warranted.

Without a reliable, consistent funding base to support current and new safety initiatives, any options will be very limited in their effectiveness. Therefore, options for future funding have also been identified.

Safety options to be considered fall into two broad categories – regulatory and non-regulatory.

Regulatory options include:

- A: alcohol limit for skippers
- B: registration of powered pleasure boats
- C: mandatory licensing of skippers
- D: mandatory fitted level flotation
- E: mandatory wearing of lifejackets on pleasure boats under 6 m
- F: mandatory carrying of communication equipment.

Non-regulatory options include:

- G: voluntary construction standards (eg fitted level flotation)
- H: increased education and removal of barriers to on-water training
- I: promotion of boating safety awareness (eg through TV commercials).

Funding options include:

- registration of craft, coupled with an annual safety charge
- taxpayer funding (associated with road/fuel tax)
- sales tax on boats and boating equipment
- seabed licences.

3.2 Evaluating future options

As reported in Part 2 of this review, which analysed all fatal accidents from 1 January 2000 to 30 June 2006, each of the regulatory options above was examined against the 106 fatal accidents (with 123 fatalities).

In each case the presence, or absence, of the option was recorded. The impact of weather and wave action was also examined.

Four regulatory options – fitted level flotation, lifejackets, communications equipment and alcohol limits – emerged from six possible options as the most promising in terms of preventing common accidents, such as dinghy capsizes, from having a fatal outcome.

Regulatory options for improving boating safety

Where a regulatory option is considered, an amendment to an existing maritime rule would usually be the most effective mechanism for its introduction. Navigation safety requirements are consistent throughout the country through Maritime Rules Part 91: Navigation Safety, and the requirement that all regional Navigation Safety Bylaws be consistent with the Rule.

While the penalty provisions in bylaws may seem relatively mild, infringement notices are normally used where an infringement has occurred but no serious harm has resulted. Where there is a more serious consequence, a prosecution under the MTA with more severe penalties can be taken. In such cases, the infringement of a bylaw is used as corroborating evidence.

For each possible option, an amendment to Maritime Rules Part 91: Navigation Safety and corresponding regional bylaws would be required.

We have outlined the background to each option below, and assessed it in terms of its:

- benefits, both direct and indirect
- implementation, including legislation, enforcement and education
- cost to government and to the community.

Option A: Alcohol limits for skippers

PROPOSAL

That a maximum blood alcohol concentration for the skipper of a pleasure boat underway be introduced and evidential testing be authorised by police following any accident or incident.

BACKGROUND

Noting that the UK and Australia have introduced a maximum blood alcohol concentration level for skippers of recreational vessels and the results of the report on the subject published by MNZ in 2004, the NPBSF made the recommendation above to the Substance Impairment Group at the Ministry of Transport:

Each year, alcohol consumption in boats is the direct cause of about three deaths. In several cases where alcohol testing of a deceased person was possible, the alcohol level was found to be well above the legal limit for driving a car. However, there is no legislation allowing evidential testing of living people. This means that in many accidents the use of alcohol was not recorded as a factor in spite of circumstantial evidence such as intoxicated behaviour, the smell of liquor, or the presence of empty cans and bottles.

Regional council honorary enforcement officers, police and safe boating advisors have commented that poor boating behaviour and attitudes are often apparently associated with alcohol consumption. Poor behaviour includes excessive speed close to shore or to other boats, creating a wake dangerous to other craft and people, being unable to berth vessels or retrieve them onto a trailer, and belligerent or inconsiderate actions.

While it is apparent that most boaties use alcohol from time to time, most indulge only in moderation, and some abstain entirely while on the water. Strong support for the proposed option has been expressed within the recreational boating community, with some people claiming that it would be a relief to know that it is an offence to drive a boat while intoxicated. It is widely recognised in the boating community that the use of alcohol increases risks while at sea.

BENEFITS OF LIMITING ALCOHOL USE BY SKIPPERS

Ensuring that the person responsible for safety on board is not intoxicated would mean greater safety for passengers and crew. This would benefit not only those on board, but also those on other boats.

Given the current inability to test living people for alcohol consumption, we can only estimate the direct benefit of this option. Indications are that at least three fatalities each year, and very possibly more, would be avoided, as well as significant injuries and property damage.

IMPLEMENTING OPTION A

LEGISLATION

An amendment to Maritime Rules Part 91: Navigation Safety would arguably be the simplest method to introduce a blood alcohol concentration limit for skippers.

However, the option preferred by government may be to include blood alcohol concentration limits for skippers of pleasure boats in other legislation that addresses the use of alcohol and drugs in the transport sector.

ENFORCEMENT

The provisions in maritime legislation regarding navigation safety, collision avoidance and marine protection are carried forward into regional council requirements. Regional councils undertake enforcement using both paid and voluntary staff. While the ability to impose fines through infringement notices exists, most enforcement is focused on education rather than penalties.

In the case of an imposed blood alcohol concentration limit, the recommendation from the NPBSF included evidential testing by police after an incident. This would require police to attend when available if requested. In the past, the police have often been involved in incidents that involve injury, property damage, or antisocial behaviour.

The cost of enforcing the amendment as recommended by the NPBSF is unknown. A significant saving would result from a reduced number of incidents involving alcohol.

EDUCATION AND PROMOTION

The introduction of a mandatory blood alcohol concentration limit would require extensive promotion with associated costs, both at the time of public consultation and when the amendment to Maritime Rules Part 91 (or other empowering legislation) came into force. Such a process would normally take about 18 months. However, there is



wide support within not only the boating sector but also the community at large. Most small boat safety organisations would assist with providing advice to their members and the public.

Moderation in drinking alcohol has been part of two summer campaigns. The Auckland Safe Summer campaign in 2001 promoted safety with the slogan *Don't Go Overboard with the Booze*. In 2004, leaflets entitled *Go Easy on the Alcohol* were included in all safety packs sent out by MNZ. Some councils have included advice regarding alcohol consumption in boats with general advice about alcohol use in the community.

With a level of awareness already in place from past promotions, less extensive advertising of this Rule would be needed than when lifejacket requirements were introduced nationally.

COST OF OPTION A

COST TO GOVERNMENT

The direct cost to government of introducing an amendment to a maritime rule, including the development, legal, and consultation, as well as an effective education and publicity campaign, is estimated at \$1m over 3 years.

COST TO THE COMMUNITY

The cost to the recreational boating community would be nil. If the proposed legislation was effective in terms of accident reduction, a monetary saving would occur from less property damage and fewer injuries and deaths.

Option B: Registration of powered pleasure boats

PROPOSAL

That a system of registration for powered pleasure boats be introduced.

BACKGROUND

There are estimated to be over 200,000 power vessels (any vessel with a motor) in New Zealand.

The PBSAG report discussed at length the registration of pleasure boats and the associated costs. The safety case for such legislation is no more compelling now than it was then. In the analysis of fatal accidents between 2000 and 2006, there was no case in which registration would have saved a life. In a small number of cases, earlier intervention to stop unsafe behaviour may have been possible if an identification number had been displayed.

There are a number of other factors that may cause further consideration of this option, however. In particular, the ability to identify recreational vessels has become more important, and without a registration system any identification on boats would have limited value.

BENEFITS OF POWER BOAT REGISTRATION

(Refer to Appendices 4 and 5 for benefits and disadvantages of registration and details of other jurisdictions.)

IMPROVED BEHAVIOUR

A prime reason given by maritime police and harbourmasters for registration of pleasure boats is to identify skippers whose behaviour in a boat is unsafe or antisocial. The vast majority of boat operators behave very well, and it appears that the proportion of wrongdoers is no greater in the recreational boating sector than in the commercial maritime sector. In terms of participant numbers and hours spent on the water, the safety record of the recreational boating community is arguably better than that of the commercial sector.

There is a widely held assumption that when a vessel operator can be identified, poor behaviour is less likely to occur. In addition, there is a public expectation that authorities will deal with those who break the law. This is more difficult to achieve without clear identity markings on craft. Registration would assist in this matter.

Any effective provision that assists either authorities or affected members of the public to identify miscreants is an option for consideration. However, without a registration system recording the identification details, the effectiveness of identification needs to be assessed carefully.

In legislation introduced in about 1968 under the Harbours Act, the Auckland Harbour Board required all pleasure craft to be marked clearly with a name. The requirement was not enforced actively. Auckland Regional Council is considering an amendment to its bylaws requiring identification to be shown on all pleasure boats.

SECURITY

Increased security requirements and the policing of secure zones around naval and other ships that may be targets for terrorist or other activities may, in time, require identification of recreational craft in some areas, such as ports.

FUNDING FOR REGIONAL COUNCILS AND MNZ

Most regional councils have taken responsibility for navigation safety in their region and seek a funding source other than general rates for the task. Some councils and some regional harbourmasters support a “user pays” philosophy for boating facilities. In Auckland, about 0.1% of council expenditure goes to navigation safety and this is typical of most jurisdictions.

Jurisdictions such as the Australian states with a registration scheme were asked a number of questions about the scheme (see Appendix 5). Where registration involved a levy on boat owners, all jurisdictions indicated that the prime benefit was to create a financial base for administration and safety of recreational craft. Some jurisdictions stated that the identification of craft provided some benefit in terms of enforcement. No jurisdiction has applied registration to all craft. In many cases registration is limited to power vessels over a stated horsepower.

RETURN OF STOLEN PROPERTY

Police advocate registration and identification to assist with the administration of stolen boats and the greater likelihood of property being returned to its owner.

A number of maritime organisations operate a registration database of pleasure boats owned by members, eg Yachting NZ operates a sail number/ registration system for vessels owned by members of boating clubs.

Many countries have introduced a hull identification number scheme. The use of microdots that can be read only under infra-red light has had support from the boat insurance industry.

BOAT REGISTRATION IN OTHER COUNTRIES

The country most akin to New Zealand is Australia, where the jurisdictions vary from the Northern Territories with no requirement for licences or registration, to strict controls of both vessels and skippers in other states. In all states, these requirements are applied only to power vessels.

In 2004, the International Maritime Organization introduced SOLAS Annex V, standards for pleasure craft. It assumes all pleasure craft will be registered. The introduction of the standard has been noted but it is too early to say what impact this will have, or whether any actions may be required in New Zealand. Currently, the convention does not apply to New Zealand vessels within the coastal marine area.

“There seems to be a culture change amongst owners of more expensive leisure craft towards skippers accepting responsibility and the need for education.”

SUPPORT FOR REGISTRATION

If the trend for larger, faster, more sophisticated craft continues, there may well be a need in the future for more intervention in the sector. At this time, there do not appear to be any drivers in this direction based on our current knowledge of accidents and incidents. If anything, there seems to be a culture change amongst owners of more expensive leisure craft towards skippers accepting responsibility and the need for education.

Operators of commercial vessels advocate a registration scheme for pleasure boats, citing the requirement for commercial vessel owners to pay an annual safety charge to MNZ. Pleasure boat owners are exempt.

OPPOSITION TO REGISTRATION

With some 350,000 pleasure boats in New Zealand, of which approximately 200,000 are powered, the introduction of registration for pleasure boats (even if it is applied only to powered craft) would be controversial. Past legislation imposed on the recreational boating sector includes the 1982 introduction of sales tax. At that time, there was widespread discontent among the one-in-three New Zealanders who go out on a pleasure boat each year. There was also a serious negative impact on the boatbuilding industry.

Pleasure boat owners who do not support a registration scheme give the following reasons:

- Boat operators pay road tax levies on the petrol they use in their boats, most of which are not returned to the maritime sector. In the case of pleasure boats, this levy is not tax-deductible. Most petrol used in on-water activities is by pleasure boats.
- One-in-three New Zealanders goes boating each year, and some level of ratepayer funding is appropriate for navigation safety and amenities such as launching ramps, alongside other sporting facilities.

- Only a very small percentage of skippers behave badly or dangerously and in serious accidents they have always been able to be identified. In any case, registration and a high level of regulation and enforcement have not stopped some road users behaving irresponsibly.

REGISTRATION OF PWCS IN NEW ZEALAND

The Transport Amendment Act in 1998 made provision for regional councils to enact a registration scheme for personal water craft (PWCs, or “Jetskis”) operating in their area. Northland, Auckland and Waikato opted to introduce such a scheme, which is legislated specifically under the Local Government Act.

At the time this legislation was introduced, some 80% of all complaints about on-water behaviour were directed at PWC users. This figure has dropped to about 15%, with a seasonal peak over summer months. A number of factors have contributed, including that:

- the popularity of PWCs has diminished
- aside from a small number of locations where PWC activity is intense over summer holiday periods, PWCs are now seen more as a family activity, with multiple seat models available
- two-stroke motors are being phased out and noise has been reduced to a fraction of the decibel levels of the 1990s.

There is no apparent difference in the level of complaints about PWC activity between those areas with a registration scheme and those without.

IMPLEMENTATION OF OPTION B

LEGISLATION

Any registration system would need to be nationally implemented. With one-in-three New Zealanders participating in recreational boating activities, the decision whether to adopt registration is one for central government.

An amendment to the MTA would be the most likely method. In 1998 the legislation permitting

the registration of PWCs was introduced only after Parliamentary Select Committee consideration. This legislation impacted on approximately 2% of pleasure craft. Registration of pleasure boats, even if limited just to powered boats, would impact on about 200,000 pleasure boats. With some 1.5 million people each year participating in recreational boating, registration would impact on close to one million people. Any decision, therefore, to introduce registration of pleasure boats in New Zealand would be made at the highest level of government following a lengthy period of public discussion.

There exist a number of boat registration schemes in New Zealand:

- MNZ operates the Ship Register, where pleasure boats heading to a place outside New Zealand must be registered in Part A or Part B.
- Yachting NZ operates a register for both sailing and power vessels. Many keelboats and launches that belong to members of boating clubs are registered in this scheme. It is dependent on pleasure boat owners providing information, and so is not able to be kept reliably up to date.
- Vessels equipped with VHF radio are required to have unique identification, and some 35,000 radio call signs are held with vessel details by Coastguard, which operates the scheme for both commercial and pleasure vessels on behalf of Radio Spectrum Management.
- Other smaller groups, such as Jetboating NZ, also operate a register of specific vessels.

A system of national registration could be helpful to interested groups to draw down data for their own use as required.

ENFORCEMENT

Models on which to base enforcement of a rule requiring registration of pleasure craft include three regional authorities that require registration of PWCs in New Zealand, and six Australian states.

Northland, Auckland and Waikato Regional Councils have elected to introduce registration of PWCs with mutual recognition of each other's schemes. Every PWC operating must clearly display a registration number and registration sticker. The power to register PWCs is contained in the Local Government Act under which Navigation Safety Bylaws are made. Enforcement is carried out by council staff, and infringement penalties apply to unregistered craft.

All states in Australia except Northern Territory (where there are large numbers of small pleasure boats) require some boats to be registered.

Generally, all boats fitted with a motor must be registered.

If New Zealand were to introduce registration for pleasure vessels, significant additional enforcement levels would be required for it to be effective. Currently, a small percentage (estimated at under 5%) of pleasure boat operators require intervention to correct clearly unsafe or illegal behaviour. This is carried out by a very small number of paid staff in vessels and by others on shore at boat ramps and similar areas. Identification of errant craft is an ongoing concern, but where a serious incident involving injury has occurred the vessels involved have invariably been identified.

While an identification number coupled with registration would assist in the case of the 200,000 vessels involved, the enforcement of the requirement to register vessels would require considerable time and resources. Effective procedures to minimise the use of false or obscured numbers would be required. Many outboard dinghies are stored in isolated places and used occasionally over the summer months. While most power vessels used in busy areas would become registered, there would inevitably be a number of owners who avoided registration.

EDUCATION AND PROMOTION

An extensive campaign to inform the boating public of the requirement would be required using all forms of media.

COST OF OPTION B

COST TO GOVERNMENT

The direct cost to government of introducing an amendment to a maritime rule, including development, legal costs and consultation as well as an effective education and publicity campaign, is estimated at \$1m over 3 years.

The cost of operating a registration scheme for all recreational power vessels in New Zealand would be met by the boating community.

COST TO THE COMMUNITY

The cost of administration can be estimated from similar schemes in other jurisdictions such as Australia, where the minimum charge for any sized vessel is \$30 a year.

Auckland Regional Council introduced the requirement some years ago for PWCs and has recently moved away from the requirement to pay an annual fee. Currently, a one-off fee is paid for a new registration or on change of ownership. The fee is \$50, which covers only the cost of administration.

Until 2002, all boats in New Zealand equipped with a VHF radio were required to pay an annual fee of \$45. The cost of administration, including collecting bad debts, was found to be more than the annual fee. The charge was not popular amongst boat owners.

It is estimated, therefore, that a system of registration would entail a minimum annual charge of \$50 per vessel to cover the cost of administration. On the basis of some 200,000 power vessels, the cost to the boating community would be \$10m a year.

The registration schemes in Australia have been put in place to raise revenue (see Appendix 5 for state by state comments), with a secondary benefit of identification of offenders. The fees charged vary, but in general range from about \$50 to \$70 a year. Once administrative costs have been deducted, all jurisdictions use all or part of the revenue to fund safety programmes and boating facilities. The fees provide funding for staff and vessels used for enforcement and education purposes in the various jurisdictions. Separate funding is used for water police, who also carry out maritime rule enforcement duties along with criminal matters.

Option C: Mandatory licences for skippers

PROPOSAL

That a mandatory licence be introduced for the skippers of pleasure power boats, coupled with compulsory education.

(See Appendix 4 for benefits and disadvantages of skipper licensing.)

BACKGROUND

The PBSAG report stated in 1999 that a “disproportionate number of fatalities occur from dinghies and small unpowered craft.” If a licence system were to be considered, then the exclusion of any sector of boat operators would remove the benefits of the system from those people. However, the requirement for skipper licences for manual and sail-powered craft has widely been considered unacceptable to all jurisdictions. Where mandatory licences have been introduced in other countries, they apply only to power vessels, and often only to those over a stated power or speed capability.

Analysis of fatal accidents from 2000 to 2006 indicated that lack of knowledge of the Collision Rule caused one death, and lack of knowledge of navigation was not the cause of any fatalities. Instruction in navigation is considered as fundamental to all boating safety courses. However,

there were a number of fatalities caused by failure to observe fundamental requirements of the Collision Rule in spite of the skipper knowing what the Rule required. In many non-fatal accidents as well as some fatal accidents, failure to keep an adequate lookout was a common cause. Some fatalities and injuries have been caused where speed and distance rules were not complied with, mainly by PWC operators.

BENEFITS OF MANDATORY LICENSING

The use of each of the 350,000 pleasure boats in New Zealand entails some level of risk. The purpose of licensing skippers and of compulsory education is to reduce that risk through better operator knowledge. The possible direct benefits include the following.

FEWER FATALITIES

Analysis showed that in 12% of the fatal accidents in the past 6 years the accident may have been prevented if the operator had been issued with a licence following tuition and a competency test.

MORE KNOWLEDGEABLE BOAT OPERATORS RESULTING IN INCREASED SAFETY

Unsafe operation is a frequent cause of complaints received by the various authorities. The complaints mostly focus on speeds close to shore or to other craft. When questioned, the operators often say they were unaware of the rules.

Even so, very rarely is a breach of the rules committed when a uniformed person from a harbourmaster's office, the police or MNZ is present. Marked cars or boats have a significant impact on compliance. When there is no such overt presence, behaviour such as travelling at excessive speed close to shore or other craft is commonplace. This strongly suggests that there is greater awareness of boating regulations than is admitted.

A test or examination associated with a licence provides a check that the person has certain knowledge and ability at the time of the test. However, the absence of a compulsory licence does not reduce the legal requirement for the skipper to know the rules (section 19 of the MTA).

DISADVANTAGES OF MANDATORY LICENSING

The benefits of mandatory licensing need to be weighed against:

- whether the attitude of some people that “because I have a licence I know enough” can create a barrier to accepting further advice
- whether policing licences would require vessel registration

- which vessel operators would be required to hold a licence
- the very wide variety of types of boats, both powered and non-powered.

Other factors that may impact on any direct benefit include:

- whether a test can adequately assess attitude to safety, or actual behaviour
- whether the test should include any practical requirement to show competence.
- how much mandatory tuition (if any) would be required before sitting a test, given that the prime causal factors present in almost every fatal accident are:
 - failure to use a lifejacket
 - inability to communicate distress effectively
 - failure to obtain up-to-date marine weather information
 - overuse of alcohol

and that keeping such issues uppermost in the minds of boaties may be better achieved

by promotion and repetition of these simple messages through a variety of media

- the level of acceptance of the boating public to more regulations, and whether the current goodwill within the sector would be adversely affected (even if the licence requirement was applied only to the 200,000 power vessels in New Zealand, as many as 300,000 people could be affected).

DIFFICULTY OF CHANGING BEHAVIOUR

Changing boaties' behaviour so that they adopt safer and more considerate practices may be achieved by repeating the simple messages time and again, or by education in a formal setting. However, until they are involved in a situation such as a close-quarters incident, many skippers see no need to alter their behaviour.

Increasing numbers of pleasure boat skippers are electing to attend voluntary education courses, often at significant expense of both money and time. The benefit from doing so is universally accepted. Whether those who do not choose to attend



such courses would gain as much benefit from compulsory attendance is debatable. Nevertheless, any exposure to information relevant to safety and the social and environmental impact of some types of on-water behaviour is likely to be beneficial.

Most fatal accidents are the result of poor seamanship, such as not having communications equipment or not wearing a lifejacket, and in the majority of cases the person who behaved unwisely is the victim. Basic safety and good seamanship are requirements common to all pleasure boats. If any sector of the boating community is exempted from compulsory skipper licences, that sector will receive little benefit from such legislation.

IMPLEMENTING OPTION C

LEGISLATION

The decision to introduce a compulsory licence for pleasure boat operators would be made by government following extensive consultation and an amendment to the maritime rule regarding licensing of seafarers. Currently, all seafarer qualification requirements are applicable to commercial vessel operators only.

Introduction of this type of legislation in other jurisdictions has usually been phased in allowing a “grandfather” period, where skippers who have been operating pleasure boats for some years can obtain a licence on application, without having to pass a test.

There are currently over 50,000 holders of Coastguard Boatmaster certificates and a similar number of Dayskippers. There are also a smaller number who hold other qualifications from various training schemes. The voluntary certificates in existence vary from high level qualifications such as Ocean Yachtmaster to very basic certificates handed out after a few hours’ tuition on boat safety in water safety programmes taught in schools. Some certificates are recognised as unit standards on the National Qualifications Framework.

Any new legislation would need to consider which of these existing certificates would meet the standard required for a skipper licence.

ENFORCEMENT

Other jurisdictions have introduced such legislation only after the introduction of a vessel registration scheme. Clearly the enforcement of compulsory skipper licensing would be very difficult without a registration system to enable identification of boat owners.

Significant funding involving on-water enforcement would be required throughout the country. A parallel could be drawn with fisheries officers who enforce legal catch limits for recreational fishermen.

EDUCATION AND PROMOTION

An education campaign that promotes the introduction of a skipper licence requirement for a sector of the wide variety of recreational boats would be similar in scope to a campaign for the introduction of vessel registration. It is probable that a licence requirement would be limited to the 200,000 power vessels.

All forms of media would be used. The principal focus would be to inform those without an existing qualification of the need to obtain a licence, and also to inform the holders of various other certificates whether theirs was acceptable.

COST OF OPTION C

COST TO GOVERNMENT

The introduction of skipper licences for pleasure vessels (even if applied only to powered craft) would be controversial. The cost of promoting such a rule and the associated education campaign is likely to be in excess of \$1m. The cost of administration would need to be met by the sector of the boating community directly affected. There would be an ongoing cost to government for enforcement of the rule.

COST TO THE COMMUNITY

The impact of the introduction of skipper licensing would vary from minimal (for those already holding an accepted qualification) to significant for those who had not undertaken any tuition or obtained a qualification.

Other jurisdictions that have mandated licences have a wide variety of standards and requirements. Most require a simple assessment, usually written, and a basic practical test. Often the practical test involves launching the boat from a trailer, a short voyage in sight of the examiner and safe return to shore. Written tests are usually a series of about 25 multi-choice questions. Where tuition is compulsory prior to taking the test, this is normally limited to under 8 hours.

The basic voluntary course in New Zealand is Coastguard Dayskipper. It involves about 15 hours of tuition followed by a written test taking about 30 minutes. There is no practical component. The cost of the course varies but is typically \$70, and the examination costs \$35.

Courses that involve practical tuition are available and any craft that is used must operate within the Safe Ship Management system, a requirement for all commercial vessels. Practical courses and examinations are several times more costly than Dayskipper.

It is unlikely that the certificates below Dayskipper level now in place would satisfy skipper licensing requirements. Recognising which existing courses or certificates were up to the required standard and which were not would present a challenge, and possibly provoke some resentment from people required to attend further tuition and examination.

The cost to the community would depend on the parameters adopted for the mandatory licences. Assuming that initially all power vessels would require a licensed skipper, this would involve at least 200,000 persons. However, many already have some form of acceptable certification, thereby reducing the number affected to about 150,000. Based on the typical cost of undertaking a Dayskipper course and assessment (\$105), this would give a direct cost of \$15.75m. To this would need to be added the cost of administering such a scheme, which would also fall on the user.

However, the introduction of licences would most probably contain a “grandfather” clause, thereby reducing the cost for existing boat owners. Administration and database costs of an estimated \$50 per person would result in a direct cost of \$7.5m.

To extend the requirement that a licence such as Dayskipper be held by the skipper of every pleasure boat, including the sail-powered and human-powered, would cost almost \$32m.

Option D: Mandatory fitted level flotation

PROPOSAL

That all new vessels under 6 m in length be fitted with positive flotation so that they float level, even when swamped or capsized.

BACKGROUND

The analysis of the fatal accidents between 2000 and 2006 indicated that an estimated 40% of those who died (that is, 50 people) may have been saved if level flotation had been incorporated in the under 6 m boats involved in those accidents. The analysis also showed that minimal benefit would also accrue from having this feature in vessels over 6 m.

Many vessels currently produced or imported already float level when inverted. These craft include inflatable dinghies, kayaks that are enclosed or fitted with adequate flotation, pontoon-style vessels, and some others where the designer and builder have incorporated this feature.

BENEFITS OF MANDATORY FITTED LEVEL FLOTATION

FEWER FATALITIES

The reduction in fatalities would phase in gradually following the introduction of such a requirement. Many existing craft do not float level, and this requirement could apply only to new construction. More demand from the boating public for this safety feature over time may see some existing craft being retro-fitted with flotation, where this is practical.

INCREASED SAFETY AWARENESS

As the public became more aware of the safety benefits of level flotation in small craft, general safety awareness of boating safety would rise. This has been seen in recent years with increased acceptance of the need to carry lifejackets, and increased wearing. Growing awareness of safety features in cars has seen increasing demand for safety features in pleasure boats beyond what is required by legislation.

IMPLEMENTING OPTION D

LEGISLATION

A Rule would be feasible only after long debate with industry. Increased industry costs involving research, development and tooling as well as more material would result. To make such changes, the industry would need significant lead time.

Maritime Rules Part 40 sets standards for commercial vessels, but there are currently no set safety standards for pleasure boats. However, section 65 of the Maritime Transport Act makes it an offence to manufacture a boat that causes unnecessary risk to persons or property.

The vast majority of craft under 6 m are used recreationally. At present, level flotation is not a requirement for commercial vessels of this size. The introduction of such a requirement for pleasure boats would also affect those used commercially. Therefore, a rule change would require a significant period of consultation with both the recreational and commercial sectors.

An amendment to Part 40 would be required.

ENFORCEMENT

Primary enforcement would entail checks to ensure that manufacturers and importers of new craft were

aware of the standard and compliant with it. The cost of such enforcement would be relatively minor.

EDUCATION AND PROMOTION

A public education campaign would only need to be very limited. The prime focus of this initiative would be industry, since any rule would be applicable only to new boats under 6 m in length.

However, some level of promotion to the public would be warranted. Just as the demand for safety features in cars has risen with greater public awareness of technological advances, public demand for safer boats would encourage manufacturers to commit to the substantial resources necessary. Ensuring that the public are aware of this initiative at the time of purchase would assist promotion of this safety feature.

COST OF OPTION D

COST TO GOVERNMENT

The development of Maritime Rules Part 40H, Standards for the Design and Construction of Pleasure Craft, and extensive consultation with

industry would be the principal cost to government. Little advertising and public promotion would be required.

COST TO THE COMMUNITY

With many craft under 6 m already including this feature and most others incorporating basic flotation, introducing such a requirement would not impact on all boat builders.

Those manufacturers who currently build boats under 6 m without level flotation would be affected significantly. One such manufacturer of aluminium dinghies has incorporated the feature into the production of all boats up to 4.5 m. He has made his research and development available to all manufacturers. However, the development needed for craft in the 4.5 m to 6 m range is far greater and production costs would be affected significantly.

The increased production cost of fitted level flotation in aluminium dinghies less than 4.5 m is about \$110 per vessel. In a trailer boat of 6 m, it is estimated that the additional production cost would be likely to exceed \$1000.



Option E: Mandatory lifejacket wearing on pleasure boats under 6 m

PROPOSAL

That **wearing** of lifejackets by all persons at all times is mandatory on recreational vessels under 6 m in length.

BACKGROUND

PBSAG considered this option and decided to recommend that **carrying** lifejackets be mandatory for all boats and that they must be worn in all situations of heightened risk. Wearing lifejackets could have prevented 65% of the boating fatalities between 2000 and 2006, and 75% of those up to 1999.

While the proportion of fatalities that may have been prevented by wearing a lifejacket has remained high, the annual number of fatalities has tracked downwards steadily to about half the number in 1999. Accident reports have made it clear that in a number of accidents where a person died, others from the same vessel survived only because they were wearing lifejackets.

It is not possible to put a number on those who survived because they wore a lifejacket. Few non-fatal accidents are reported, and so little data is available for small-boat capsizes where loss of life was prevented by lifejackets. Capsizes are common in small craft such as dinghies and kayaks.

The PBSAG report placed the percentage of deaths that occurred while wearing a lifejacket at about 25% of the total. That number has now increased to about 35%, indicating that an increasing number of people survive an immersion accident for a time but then die before being rescued. While this improvement is encouraging, there are still many instances of fatalities or near-fatalities in dinghies where no lifejackets are carried.

BENEFITS OF MANDATORY LIFEJACKET WEARING

FEWER FATALITIES AND INJURIES

If this requirement was in place and compliance was 100%, up to 56% of fatalities may have been prevented. This equates to up to seven lives a year.

The requirement to wear lifejackets in all circumstances where increased risk is present was introduced in 2003. While this rule has made a major contribution to the reduction of fatalities, there have still been many fatal accidents where lifejackets were not worn, in spite of present risk.

So it is far from certain that there would be universal compliance with a rule requiring mandatory wearing at all times.

Tasmania and Victoria have introduced mandatory wearing in small craft, with fines for non-compliance. An increase in wearing has been noted, and those who break the rule invariably have the lifejacket close at hand and ready to put on should an enforcement officer appear. Having the lifejacket within reach is safer than having it stowed away.

The benefit from wearing a lifejacket extends beyond the in-water support it provides. It also protects the wearer from impact injuries in a collision with other vessels, rocks or waves.

SAFER BEHAVIOUR

Although the wearing of lifejackets has increased significantly, there remains a reluctance on the part of some to be seen wearing a lifejacket. A rule requiring wearing at all times would remove the element of choice in the matter and discourage thoughts of “unmanliness”.

If everyone in boats under 6 m were to wear lifejackets at all times a significant number of lives would be saved, but a simple regulation requiring this is probably unacceptable to the maritime community.

The current legislation requires wearing at all times when there is heightened risk, with the skipper making the decision as to whether there is heightened risk. Rather than leaving this decision to the skipper, wearing lifejackets by default and having the skipper decide when there is “no risk” and therefore no need to wear lifejackets may result in more people wearing lifejackets.

A requirement such as “Lifejackets must be worn at all times in recreational vessels under 6 m, unless the skipper decides that this is not necessary due to the absence of significant risk” is an option worthy of consideration.

IMPLEMENTING OPTION E

EDUCATION AND PROMOTION OF THE RULE

An extensive ongoing campaign since 2002 has focused on carrying and wearing lifejackets, including TV commercials as well as all other media. If a change in Maritime Rules Part 91 and Navigation Safety Bylaws to require increased wearing of lifejackets were put into force, further education using all media would be required. It would “freshen” the lifejacket message.

Whether a further requirement regarding lifejacket wearing is introduced or not, the campaign to encourage wearing will need to continue in order to maintain the reduced number of fatalities achieved to date.

LEGISLATION

During the consultation period prior to the introduction of mandatory carriage of lifejackets in 2003, many submissions were received. While there was some support then for mandatory wearing at all times in small craft, strong counter-arguments were made by the many submitters to Maritime Rules Part 91.

Their submissions cite a number of circumstances in which compulsory wearing is unnecessary. Furthermore, it is suggested that such a requirement would be met with derision in some circumstances and that this would therefore be detrimental to the entire lifejacket rule and its promotion. These circumstances include:

- using a dinghy for short distances between boats or close to shore where others are swimming with no lifejackets
- boating in shallow-water estuaries and lakes where standing is possible
- being inside the cabin of a boat on a calm day.

It was also submitted that any provision that made a rule subject to derision would inevitably taint the whole rule and its safety message.

Therefore, extensive consultation with the recreational boating community would be required before a rule requiring compulsory wearing at all times could be put in place.

An amendment to Maritime Rules Part 91: Navigation Safety would be required. This entails:

- Ministry of Transport approval and funding to develop the amendment
- development of the draft amendment with input from key stakeholders
- approval from the Ministry of Transport to proceed with public consultation
- advertising and promotion of the draft amendment to all stakeholders and the public
- assessment of submissions received, with possible amendments to the draft requiring further public consultation
- development of the final rule and approval by the Minister of Transport.

ENFORCEMENT

The existing rule about carrying lifejackets is enforced by regional council officers, MNZ staff and maritime police, and supported by other participants in the water safety sector without statutory powers. Changes such as this and similar proposals would require no additional enforcement beyond existing programmes.

Mandatory wearing would also make enforcement much easier since it is readily apparent whether someone is wearing a lifejacket or not. Currently, lifejackets are carried on about 95% of craft but those enforcing the rule often need to ask, since lifejackets are frequently stowed away from sight.

About 5% of vessels still do not carry lifejackets. A rule requiring mandatory wearing may well help to rectify this situation due to the ease with which lifejacket wearing can be checked.

COST OF OPTION E

COST TO GOVERNMENT

The direct cost to introduce an amendment to a maritime rule, including the development, legal costs and consultation, as well as an effective education and publicity campaign, is estimated at \$1m over 3 years. Promotion of the existing rule and lifejacket wearing in general has involved expenditure of an estimated \$1.3m to date.

COST TO THE COMMUNITY

The cost to the sector of this proposed rule is nil. Lifejackets are already a legal requirement.

Option F: Mandatory carriage of communication equipment

PROPOSAL

That all recreational vessels carry on board at all times a means of communicating distress that, in the case of vessels less than 6 m, will be effective following an immersion accident.

BACKGROUND

The PBSAG report considered a number of means of communication, including VHF radio and flares. It did not consider mobile phones as a safety communication device. Changes in technology, lower costs and greater cellphone coverage around the coast have resulted in substantial changes in the availability and variety of communication devices.

Accident data indicates that while there are still many instances of fatalities or near-fatalities in dinghies where no lifejackets are carried, there has been a measurable drop in the number of

deaths attributed to the failure to have a lifejacket. The analysis also indicates that if current levels of lifejacket wearing continue, a greater number of fatalities may be prevented by mandating communications equipment than would be prevented by mandating lifejacket wearing.

Increasingly, fatalities have occurred where people have died in the water wearing a lifejacket but unable to summon assistance. Often the vessels involved in these accidents have been well equipped with communications equipment such as VHF radios and cellphones, which have become useless because of water damage. Some also had flares which were not accessible following a capsize or foundering.

Legislation requiring skippers to ensure their vessels are equipped with a means of communication that is effective after an immersion accident could save up to seven lives each year.

Rather than looking at the range of different means of signalling distress, this review has considered communication as a single issue, with the analysis based on any form of communication that would have been effective in the circumstances at the time of the accident.

Refer to Appendix 6 for an assessment of effective communication equipment, and the circumstances where particular items are appropriate.

BENEFITS OF MANDATORY COMMUNICATION EQUIPMENT

FEWER FATALITIES AND INJURIES

Accident analysis of the period 2000 to 2006 indicates that up to 57% of fatalities may have been prevented if effective means of communication had been available immediately following the accident. This equates to a possible prevention of 70 fatalities in that period.

A financial saving from the reduction in search and rescue time is an additional benefit.

SAFER BEHAVIOUR AND MORE AWARENESS

The introduction of any new safety legislation results in increased focus on the issue and greater understanding.

The impact of this proposal is likely to be enhanced due to the increasing availability of radio and rescue services on shore. In the period from 1999 to 2006, RCCNZ has been relocated and extensively upgraded, Coastguard rescue services have been upgraded with increased services to a higher standard, and there is greater cellphone coverage. Most people now have cellphones.

IMPLEMENTING OPTION F

LEGISLATION

An amendment to Maritime Rules Part 91 and subsequent amendments to Navigation Safety Bylaws would appear to be the simplest mechanism to introduce this legislation. Since the Rule would affect virtually every vessel, a period of pre-public consultation with key stakeholders in the recreational boating sector would be required. Following drafting of the rule, public consultation over a period of at least 3 months would allow sufficient time for all to make submissions.

ENFORCEMENT

The Rule would lie alongside the mandatory carrying of lifejackets, which is enforced by regional council officers, MNZ staff and the police, with assistance from many people providing educational and safety awareness advice. While infringement notices are available as an enforcement option for existing Navigation Safety Bylaws, they are rarely imposed in areas other than Taupo and Queenstown. In the event of a breach of the Rule that leads to serious harm or a fatality, prosecution under the Maritime Transport Act normally follows.

No additional resources would be required.

EDUCATION AND PROMOTION

If carrying effective communications were to be made mandatory, an extensive and lengthy campaign promoting the rule, advice on what is appropriate in varying circumstances and the reasons why the legislation was introduced would be essential. The campaign would need to be as extensive as the campaign promoting lifejacket usage, with ongoing promotion during the following years.

Continued promotion of lifejacket usage is planned, and mandatory communications equipment would need to receive similar promotion with similar resources. The importance of carrying an effective means of communication appears to have become as important as the message to wear lifejackets.

COST OF OPTION F

COST TO GOVERNMENT

The principal cost to government would lie in the widest possible promotion of the rule. While a major publicity campaign would be required during the consultation and introduction phases, an ongoing cost similar to that required to promote lifejacket wearing would be required to ensure that the legislation was effective in preventing loss of life.

An estimated initial cost of \$500k to introduce the rule would be needed, with subsequent annual costs of approximately \$300k for adequate promotion.

COST TO THE COMMUNITY

Most pleasure boats are well equipped and operated. A large majority already comply with the proposed legislation, just as most carried lifejackets before carrying them became compulsory.

However, unlike lifejackets, an effective means of communicating after an immersion accident such as a capsized seems to be something a significant number of recreational skippers have given no thought to.

Means of communication that are effective after an immersion accident include:

- VHF radio
- electronic locator beacon
- sealed cellphone
- red hand-held flare
- waterproof torch
- arms signal.

The current cost and the merits of each of these methods are given below.

COST AND MERITS OF VARIOUS COMMUNICATION METHODS

VHF RADIO

The single most effective means of communicating is clearly a VHF marine radio. It is the most widely used means of communication in coastal waters. We estimate that about 120,000 VHF radios are currently in use, with about 40,000 call signs having been allocated.

There is almost total coverage by Maritime Radio's 29 coast stations with coverage to about 30 miles from land round the New Zealand coast. Some 64 Coastguard and private radio stations provide supplementary coverage, primarily as a service for their members. Some Coastguard stations are staffed 24 hours, 365 days. Twenty port radio stations, which are staffed continuously, also provide coverage. There are also a number of fishermen's radio stations and other private coastal radio stations, all of which provide vital communication. In cases of distress, all stations work co-operatively to ensure the best possible search and rescue result.

The cost of a typical VHF radio is about \$250. This figure has steadily fallen over the past 10 years, from about \$450 in 1996. Allowing for inflation, the real cost is now less than half what it was when PBSAG considered safety equipment.

An installed VHF radio that relies on the boat's battery power is not normally a model that is protected from water. Even when a water-protected model is fitted, a capsize or swamping will usually render the power source unusable, and the aerial is likely to be submerged. However, boats over about 6 m in length are rarely involved in a capsize-type accident.

More importantly, the cost of water-protected VHF radios has fallen from about \$1,000 to around \$250. This also applies to hand-held units, whose availability and reliability has improved hugely with the advances in battery technology in recent years. It is practical to keep a hand-held VHF radio in a sealed plastic bag, unlike an installed unit.

Furthermore, the marine VHF radio network around the coastline has been developed to the point where 98% of coastal waters out to 30 miles now have 24-hour listening coverage. In many popular boating areas, multiple stations keep a listening watch.

The operating range of a VHF radio depends on the height of the aerial above the sea or land surface. So the range between two boats with hand-held units is likely to be less than 5 miles, compared to a typical range of over 10 miles if both had installed sets. Between a boat and shore stations, the difference between the two types of VHF radio is minor, due to the height of the aerial onshore. However, the lower power of hand-held sets does limit their range, particularly in marginal conditions.

Almost all pleasure boats that remain permanently moored (motor launches and keel yachts) are fitted with VHF radio. Trailer boats over 6 m in length are higher-value vessels that carry similar equipment, and are unlikely to capsize. These boats often carry other equipment such as flares, torches and possibly electronic locator beacons. Therefore, the cost impact on this sector (vessels over 6 m in length) is minor.

There are about 135,000 pleasure boats with a registered boat trailer. A further estimated 5,000 are a similar size and are stored in "dry-stack" marinas. About 70% of these vessels are less than 6 m in length. While many may be fitted with an installed VHF radio, carrying a waterproof VHF radio (or other effective means of communication) would become mandatory so that assistance could be sought after a capsize.

There are up to 200,000 other small craft, including dinghies, kayaks, sailboards, tenders and similar inshore craft. In many cases these are operated only by day in close proximity to other craft or the shore.

Some may operate outside cellphone coverage area and would require a VHF radio.

A costing of \$200 will be used for the impact estimate on craft that are likely to be required to purchase a VHF radio.

ELECTRONIC LOCATOR BEACONS

From February 2009, EPIRBs (emergency position indicating radio beacons) operating on 121.5 MHz will no longer be detected by satellites. EPIRBs operating on 406 MHz are available, and mandatory on pleasure boats departing from New Zealand. The minimum cost of a 406 MHz EPIRB is \$600. This figure will be used for the estimate on craft that are likely to be required to purchase an EPIRB due to the distance they proceed offshore.

SEALED CELLPHONES

Waterproof cellphones are available. A less expensive but still effective option is to seal a cellphone in a plastic bag which costs a few cents. "Dry-pack" bags specifically designed to protect cellphones from water are available at about \$10.

A cost of \$1.00 will be used for the estimate on craft that are likely to be required to purchase protection for their cellphones.

RED HAND-HELD FLARES

These are not commonly used but are unaffected by short-term immersion. Flares have a shelf life of 3 years, after which they must be replaced. A red hand-held flare costs about \$40.

WATERPROOF TORCH

This is a short-range means of signalling for assistance in darkness, costing about \$20.

ARMS RAISED AND LOWERED REPEATEDLY (INTERNATIONAL DISTRESS SIGNAL)

This very short-range day signal is well understood.

ESTIMATED FINANCIAL IMPACT ON THE BOATING COMMUNITY

For pleasure boats required to have the following communication equipment, the total costs to the community are estimated as:

- VHF radio: 30,000 @ \$200 = \$6m
- EPIRB: 1,000 @ \$600 = \$600k
- cellphone protection: 250,000 @ \$1 = \$250k
- red hand-held flare: 100,000 @ \$40 = \$400k
- waterproof torch: 50,000 @ \$20 = \$100k.

These estimates are clearly debatable, but the total economic impact of this proposal on the community is unlikely to exceed a one-off cost of \$10m. Only

the owners of those vessels travelling over 30 miles from shore would need to spend more than about \$200.

Non-regulatory options for improving boating safety

Option G: Voluntary construction standards

Mandatory safety requirements and design criteria for new vessels have been introduced in Europe for all members of the European Union.

In New Zealand, in a joint venture between the MIA and Coastguard, a compliance plate certification (CPC) scheme, now ensures a voluntary standard for some 70% of small pleasure boats built in New Zealand for the recreational market. The CPC standard requires boats from 4.5 m to 8 m in length to have positive flotation, as well as meeting a number of other requirements.

All power craft in New Zealand used commercially must meet design criteria far more extensive than the CPC scheme, as well as comprehensive safety standards set in maritime rules.

No standards are legislated for wind or human-powered vessels, either recreational or commercial.

While the commercial standard and the CPC recreational standard have much in common, the option of having one standard applied to all new vessels under a certain size (possibly 12 m) may be an option that could result in safer small pleasure boats.

Other sporting bodies such as Yachting NZ, Rowing NZ, JetBoating NZ, Sea Cadets, waka ama groups and other similar organisations have safety requirements for boats participating in competitions.

Without mandatory requirements, safety standards and equipment are primarily in the hands of individual skippers. However, the voluntary schemes introduced by the pleasure boat industry and associations have clearly raised safety standards that benefit the owners of the boats involved.

The option of developing further voluntary safety features in boats, in the same way cars now include voluntary safety features, could make small vessels safer while improving the safety culture and awareness of their responsibilities amongst boat owners.

Option H: Increased education and removal of barriers to on-water training

Promotion of voluntary safe-boating courses and training has been carried out by several organisations, principally Coastguard Boating Education Service (CBES). Some 13,000 people attend some type of training or formal education organised by CBES each year.

While classroom-based education has proved to be very successful in New Zealand, on-water training has been less widely adopted, mainly because of factors associated with the difficulty of operating a training vessel.

These factors include the reported cost of operating vessels in Safe Ship Management schemes, and commercial qualification requirements for skippers that are not always relevant or appropriate to the situation.

In spite of these barriers, a number of training craft are operating commercially, principally offering Royal Yachting Association courses through CBES.

Other national and regional sporting organisations offer training and education targeted at their own sport. Most participants operate their own boat under guidance. In most cases, on-water safety and the awareness of other craft is included in the tuition being offered.

Increased promotion of all these schemes would bring additional safety benefits.

Option I: Promotion of boating safety awareness

MNZ has been the principal provider of television and radio commercials promoting boating safety awareness, but all participants in the safety sector have used a range of methods for this purpose.

Although television has the greatest penetration across the widest range of the public, the education programmes promoted by CBES with assistance from WaterSafety NZ and ACC have become widely known and supported by the public. WaterSafety NZ and WAI (WaterSafe Auckland Incorporated) both promote the broad concept of safety wherever water is present, and the impact of these messages on the public has clearly raised awareness of risks. Across the board, the number of fatalities due to drowning is dropping.

Sporting bodies such as Kiwi Association of Sea Kayakers, Yachting NZ, NZ Jet Sports Boat Association, NZ Recreational Canoe Association,

Rowing NZ and Scouting NZ have higher safety standards and focus on the responsibility of organisers and administrators within their organisations.

The resources that underpin such programmes are limited, particularly financial resources. Increased funding for safety within all boating sports would clearly raise awareness of boating safety further. However, the importance of co-ordination through the National and Regional Boating Safety Forums to ensure the most important safety messages are taken to the boating public cannot be overstated.

FUNDING OPTIONS

Currently, funding for recreational boating safety programmes is derived from several sources. MNZ's safety and awareness programme is funded by a combination of Crown funding, a partnership with ACC and commercial sponsorship.

CBES relies on funding from the Lotteries Grants Board, tuition fees and sponsorship. Water Safety NZ similarly relies on ACC, Lotteries Grants Board funding and commercial sponsorship.

NZ Police receives funding from the Crown, together with some commercial sponsorship, while local authorities receive funding through rates, bylaw charges and limited sponsorship.

Other organisations, including a wide range of national and regional boating organisations and clubs, rely on a combination of sponsorship, public fundraising and Lotteries Grants Board funding to undertake safety promotional activity.

Significant funding is derived from personal subscriptions and member contributions to private organisations such as Coastguard and boating clubs, which use a proportion of this income to promote safety.

While the sources of funding might differ, it is clear that most organisations struggle to get the financial support that they need to implement recreational boating safety programmes. Moreover, the funding that is available (with the exception of Crown funding) is usually only provided on a year-to-year basis, which makes any long-term campaign planning very difficult.

This section examines four potential options for sourcing reliable funding to implement recreational boating safety programmes – fuel excise tax, boat registration, boat sales tax and seabed licences.

FUEL EXCISE TAX

The Transit New Zealand Act 1989 provides for a portion (as specified from time to time by regulation) of money paid into the Crown bank account as fuel excise duty to be credited to the National Land Transport Fund for the purposes of developing New Zealand's roading network and improving road safety.

At present, 42.5 cents (excl GST) from each litre of petrol sold is Petrol Excise Duty and a further 7.3 cents is paid to the ACC vehicle account.

There are currently an estimated 220,000 pleasure boats in New Zealand that are fitted with a motor. Approximately 25,000 of these are fitted with a diesel engine, and the rest are petrol-powered, usually by an outboard motor. No benefit from the tax paid into the National Land Transport Fund to improve road safety is currently returned to fund boating safety, therefore boat users have claimed that they subsidise road users.

In October 2007, the Land Transport Amendment Bill was introduced to parliament. It included provision for road user charges paid on petrol used in boats to be used for boating safety, search and rescue and education. The Bill was referred to a select committee. The NPBSF made a submission supporting this provision in the Bill.

Estimates by PBSAG suggest that pleasure boats spend around 255 hours a year on the water, and could be expected to be underway consuming petrol for between 20% and 50% of that time (on average). The MIA has suggested an average of 40 hours per vessel per year is a conservative estimate of consumable hours, which is at the very bottom end of the scale.

At 40 hours per boat per year, an estimated \$19m/year is collected as Petrol Excise Duty from boat owners who receive little or no direct benefit to themselves. In effect, it could be argued pleasure boat owners have been cross-subsidising road

users since a road tax reimbursement system was abandoned with the introduction of "carless days" in 1973-75.

REGISTRATION OF CRAFT COUPLED WITH AN ANNUAL MARINE SAFETY CHARGE

Overseas, registration usually (but not always) involves the unique marking of a boat, with a supporting database of both markings and contact details of the vessel owner, who pays a fee (except in Canada). The fee is usually payable annually, but in some cases it may be for a longer period.

South Australia, for example, has a register of 47,000 boats and charges an annual fee of \$50 (a total of \$1.8m a year). Half of that fee (\$25) is used to meet the costs of administering the system, and half to fund services to the recreational boating community.

New South Wales raises some \$8m a year from registration fees of \$40 per boat per year.

The Auckland Regional Council charges a one-off fee on change of ownership to register a personal water craft. The current fee is \$50.

If registration was introduced in New Zealand for all moored craft and trailer craft (on a registered boat trailer) fitted with an engine, some 170,000 boats would be involved. Assuming a fee of \$40 per vessel per year, as is the case in NSW, up to \$6.8m could be raised each year. After meeting administration costs of, say, \$2.5m a year, around \$4.3m would be available to fund safety services to recreational boating.

While current legislation allows only for cost recovery in a registration system, a marine safety charge (MSC) could be added, as for commercial vessels. As a comparison, a 12 m charter launch typically pays an MSC of \$150, and a 6 m craft about \$70.

Appendices 4 and 5 (pages 78 and 80) provide more information on registration.

“It is clear that most organisations struggle to get the financial support that they need to implement recreational boating safety programmes.”

SALES TAX ON BOATS AND BOATING EQUIPMENT

In 1981 the government introduced a sales tax of 20% on all vessels, marine equipment and services. This tax was abolished with the introduction of GST in 1985. Currently the pleasure boat industry has an estimated turnover of \$1.56b annually. While a proportion of this is associated with exports, a 1% sales tax may achieve a funding level that meets the resource needs identified in the PBSAG report.

SEABED LICENCES

Under the Resource Management Act, regional authorities are required to consider the option of setting seabed licence fees for occupation of seabed areas. This option, currently being considered by some authorities, can be applied to moored vessels, boatsheds and similar seabed users.

3.3 NPBSF conclusions

The recreational boating safety strategy recommended in the 1999 PBSAG report has proved very successful, with the number of fatalities falling by around 50% in the last 6 years. Before the implementation of the strategy, there were around 22 fatalities a year, with the number trending upwards. In recent years, the annual average has been around 12 fatalities and trending downwards. In 2006, the lowest boating toll on record was achieved at just seven fatalities.

These figures represent an average of six lives saved for each year that the strategy has been in place – a minimum of 36 lives saved over a 6-year period.

The NPBSF believes that continuing the existing initiatives is imperative. The confidence to make safety recommendations and implement programmes is derived from robust accident investigation and analysis. New Zealand can benefit from overseas experience where a lack of in-depth knowledge has hamstrung a number of jurisdictions



who have had to rely on scanty information when forming policy.

The need to continue a centrally co-ordinated approach, based on an agreed strategic direction, is clear to members of the NPBSF. The absence of uniform safety messages agreed by national boating safety organisations will result in a return to ad-hoc safety messages from a variety of sources. However well meaning, the inevitable result is confusion in the boating public's mind as to what the real risks are when boating.

The NPBSF strongly believes that continuing the current strategy, which focuses primarily on skipper responsibility and education, is essential. At the heart of the strategy is the safety awareness and education programme that targets key safety risks. Continuing this programme is fundamental if hard-won gains in safety are not to be lost.

Central to the safety awareness programmes are the four key factors that the review has confirmed are the principal elements in the fatality equation – lifejackets, communications, the weather and alcohol.

The NPBSF also acknowledges that safety awareness promotion works best as part of an integrated strategic package that includes improvements and advances in the design and manufacture of vessels and equipment, search and rescue services, and the delivery of education programmes.

To that end, and based on more in-depth accident investigation and analysis of all fatal accidents over the past 7 years, the NPBSF has concluded that the strategy should be augmented by new initiatives in these four key areas. These are set out below.

In reaching these conclusions, the NPBSF is acutely aware of the funding required to implement the safety strategy. Since its inception, the strategy to improve safety awareness has been seriously hampered by the lack of an adequate and reliable source of funding. It has relied heavily on sponsorship, which has proved difficult to obtain and has declined drastically in recent years.

Without an adequate and stable source of funding into the future, it is unlikely that the fall in the boating toll can be sustained, much less reduced. Mechanisms for making sufficient funding available to implement the strategy effectively are added to the lists of options below.

Options supported by the NPBSF

Continuation of the existing safety awareness campaigns and programmes is imperative.

Education and training

The success of the current initiatives for skipper education and training, highlighting the skipper's responsibility for safety on board and for compliance with all legal requirements, needs to be supported by all involved in safety in the recreational boating sector.

The NPBSF also endorsed the need to reduce as far as possible any barriers to on-water training to ensure that skippers have the maximum opportunity to receive practical training at reasonable cost. The cost of compliance for boats used in on-water training has been cited as a disincentive, since these boats must comply with all requirements for a passenger vessel.

In addition, the NPBSF supports the following new initiatives:

1 Mandatory alcohol limits for skippers

The 2005 report on alcohol use in recreational craft, the results from accident investigations, the increasing speeds of modern boats, and the widespread reporting of alcohol as a factor in boating mishaps have convinced NPBSF members of the need to establish a maximum blood-alcohol level for skippers of boats underway. Evidential testing is also recommended.

2 Mandatory carriage of communication equipment

The statistical analysis of fatal boating accidents from 2000 to 2006 indicated that the ability to communicate distress following an immersion-type accident has become just as important as wearing lifejackets in preventing fatalities. While many boats already carry a means of communication, every recreational craft needs an effective method of signalling for help, particularly those prone to capsize. In many cases, providing of a reliable form of communication involves little extra cost.

3 Fitted buoyancy to provide level flotation

The safety benefit of having a craft that floats level following a capsize is very apparent. Even if it cannot be righted, a craft that remains horizontal provides a far better platform for survivors, permits retrieval of essential equipment from under the boat and creates a much larger target for rescuers.

The NPBSF members endorsed work already done by some builders of small craft and supports further initiatives by designers and builders for level flotation in all craft under 6 m. The NPBSF believes that MNZ, Coastguard and the Marine Industry Association (MIA) should work with industry to encourage level flotation as an option in all new boats and promote this safety feature to potential recreational craft purchasers.

4 Default wearing of lifejackets in craft under 6 m

The current legislation requires lifejackets to be worn on a recreational craft only in circumstances of increased risk. However, in spite of a significant increase in lifejacket use generally, more than half of the fatalities in the past 7 years involved people not wearing lifejackets. This proportion has not diminished in the last few years.

Very few of those fatal accidents occurred in vessels over 6 m in length. In many cases the conditions posed increased risk, but the skipper had decided that lifejackets were not necessary.

By introducing a change in the wording of legislation requiring lifejacket wearing, the onus would be placed on the skipper to decide when it was “safe to take a lifejacket off”, as opposed to when it was “necessary to put it on”, as required currently. This legislation would apply to all boats prone to capsize; that is, those under 6 m in length.

Consideration was also given to compulsory lifejacket wearing at all times in craft under 6 m. However, the NPBSF believes that allowing a skipper to judge circumstances where wearing would not contribute to safety is part of their responsibility for safety on board.

5 Promotion of boating safety awareness

The NPBSF noted the considerable impact that the 2003 – 2006 promotion of lifejacket wearing had in the reduction of fatalities in boating accidents. The forum strongly endorsed the need to continue safety promotion by every possible means focusing on the four key safety imperatives namely, lifejacket wearing, carriage of communications equipment, heeding weather warnings and avoiding alcohol.

6 Petrol tax funding for safety programmes

The NPBSF supported petrol tax funding for safety programmes, noting that only a small proportion of the tax currently paid into the road fund from

petrol used in pleasure boats was returned to the recreational boating sector.

7 Enforcement

The NPBSF supported additional enforcement of rules and bylaws.

8 Volunteer programme

The success of regional council and MNZ volunteer work was noted by the NPBSF.

9 Accident analysis

The NPBSF considers ongoing investigation and analysis to be an essential cornerstone for the development of a safety strategy.

Options not supported by the NPBSF at this time

1 Registration of powered recreational vessels

The minimal impact that this option would have on preventing fatalities and injuries has resulted in lack of support for this measure. However, the NPBSF strongly endorsed the need for every pleasure craft to display a clear form of identification, because of the benefits in terms of improved behaviour from skippers knowing that they might be identified. The NPBSF also noted better enforcement of the existing legislation would make managing the small percentage of irresponsible boat operators easier.

2 Mandatory licences for skippers

The NPBSF noted that increased numbers of pleasure boat operators had attended tuition courses and improved their safety awareness as a result of the safety messages on TV and in other media. If a mandatory licence for skippers were introduced, it would almost certainly apply only to operators of power boats, and the skippers of other craft would gain no benefit from the legislation. The current strategy has been particularly successful in reducing the annual boating toll, and so the NPBSF did not support the introduction of mandatory licences at this time. Continuing the co-ordinated promotion of voluntary education and safety awareness is strongly supported.

3 Mandatory construction standards for vessels

While a significant number of fatalities in boats under 6 m could be prevented if all small craft floated level when inverted, the NPBSF does not support a mandatory provision at this time.

4 Registration of pleasure craft with an annual safety charge

This is not the preferred option of the NPBSF for funding safety programmes, given the substantial fuel excise road tax already paid on petrol used in pleasure boats by the recreational boating sector.

5 Sales tax on boats and boating equipment

The NPBSF does not support this option for funding safety programmes, noting that this initiative was particularly unsuccessful when introduced in 1981. The NPBSF also advised that the marine sector had taken many years after the selective tax was removed to recover from the substantial damage.

6 Seabed licences

The NPBSF noted this initiative was currently under discussion between central and local government. The NPBSF does not support this measure for funding boating safety programmes, noting that any such licence would be payable by only a small sector of the boating community.

3.4 Summary of NPBSF recommendations

The NPBSF recommends that:

- The successful safety strategy developed from the PBSAG recommendations and initiated in 2001/2002 be maintained, including the following programmes:
 - **Safety awareness:** continuing the nationwide promotion of safety messages targeting the four key factors in the safety equation – lifejackets, communications, the weather and alcohol.
 - **Education:** increasing the opportunities for training and education for pleasure boat owners, and the number of operators attending courses.
 - **Enforcement:** improving capability, including the use of infringement notices for offences.
 - **Safe boating advisors:** continuing the development of the volunteer safety advisor and honorary enforcement officer programmes managed by MNZ and local authorities.
 - **Accident analysis:** continuing the in-depth accident investigation and analysis of all fatal recreational boating accidents and, where possible, all other serious boating accidents.
- The following programmes be introduced to augment the existing strategy:
 - **Blood alcohol limits and testing:** setting a maximum blood alcohol concentration for the skipper of a recreational vessel underway and permitting evidential testing by police following any accident or incident; educating boat users of the dangers associated with the use of alcohol in boats.
 - **Default lifejacket wearing:** amending the wording in the Navigation Safety Rule (and Navigation Safety Bylaws) to state that wearing a lifejacket in a recreational vessel under 6 m is required unless the skipper has decided it is not necessary because the risk is low.
 - **Mandatory carriage of communications equipment:** making it mandatory for all craft to carry at all times an effective means of communicating distress that is appropriate to the situation and that, in the case of vessels under 6 m in length, remains effective after immersion.
 - **Level flotation:** developing and implementing voluntary industry standards for vessels under 6 m, with further research and development into retrofitting level flotation in existing pleasure boats.
 - **Funding from petrol tax:** that central government provide NPBSF with additional funding for pleasure boat safety from revenue collected as petrol tax from fuel used in pleasure boats.

Appendix 1

The PBSAG report (1999)

Executive summary

Rationale

Historically, the promotion of recreational boating safety in New Zealand has focused on education rather than regulation. The Pleasure Boat Safety Advisory Group (“the Group”) was established by the MSA in March 1998 to review this approach in light of a number of high profile pleasure boat accidents. Particular concern has been expressed by the public in recent years about PWC, more commonly known by the commercial brand “Jet-Ski”.

The Group is comprised of a representative cross-section of those involved with pleasure boating, including central and local government, safety organisations and pleasure boat operators.

Methodology

Phase I of the review comprised a *detailed overview of recreational boating in New Zealand*, including details of participants, marine industry activity and resources allocated by education and enforcement organisations.

A comprehensive examination of legislation, organisations involved in enforcement and education activities, details of the boat population including participation rates, and a reconciliation of disparate accident, drowning and fatality databases was undertaken.

International recreational boating jurisdictions were surveyed for details of the recreational boating safety management system in place, the resources applied to promoting recreational boating safety, and accident and fatality causes. In order to make a comparison across jurisdictions, data on fatalities per 100,000 vessels was collected and used in a preliminary assessment of the existence and extent of a recreational boating safety problem in New Zealand.

Phase II involved a *detailed examination of New Zealand accident and fatality reports and statistics* to provide a focus for the development of a

range of possible management options which would then be promulgated for public discussion.

A total of 60 fatal accidents involving 69 fatalities occurred between January 1994 and December 1997. Forty-seven fatal accidents and 156 non-fatal accidents occurring during this time provided sufficient detail to allow in-depth examination. Reports were sourced from the MSA accident database, the Water Safety New Zealand (WSNZ) drownings database and from Coroners’ records.

A range of 13 options, including the status quo, which might be applied to the management of recreational boating in New Zealand, were identified by the Group.

Management options were allocated to each of 195 accidents where it was considered likely that had the strategy been in place at the time of the accident, the accident may have been prevented. The purpose of this allocation was *to identify common features of fatal and non-fatal accidents which might be addressed by specific strategies*. Twenty-one fatal accident reports did not contain sufficient information to allocate management options.

The use of accident data to suggest the possible value of safety management options instils a bias toward “safety” focused options, such as the use of safety equipment, and away from options which may have a less direct link to safety outcomes, such as enforcement of existing legislation. This bias is acknowledged.

The Group released its Interim Report (containing preliminary recommendations and details of all information assessed to date) in December 1998. At the same time a document inviting public comment on the interim findings was distributed, and a series of meetings held around the country to elicit public response. The Group also sought more information about management systems in place in international jurisdictions.

A number of analytical tools, including cost-benefit analysis, were then employed to help the Group assess the relative merits of safety management options and develop a final set of recommendations.

Recreational boating in New Zealand

Boating is important to New Zealanders with 14.6% of New Zealand households owning at least one boat. In a survey conducted in 1996, 41% of New Zealanders stated that they had been out in a pleasure boat during the previous year. The majority of boat owners own trailer power boats, closely followed by dinghies. Over 80% of boats owned by New Zealanders are in these two categories. Most water activities are undertaken on an occasional basis.

The level of self-assessed knowledge amongst boaters is often high but this is not always borne out in their response to skill or knowledge questions. Boaters, while confident about their own ability, commonly express concern about the perceived limited skills of other boaters.

A number of organisations, both governmental and non-governmental, voluntary and non-profit, provide support and resources for recreational boating safety. Structured voluntary boating education courses are run throughout New Zealand.

Existing national legislation controls on-water behaviour (navigation and speed). Enforcement of this legislation is largely by exception, although the introduction of a national infringement regime may alter this situation. New Zealand has no legislation requiring boat registration or operator licensing.

It is clear that a variety of resources – human and financial – are being applied to promote safe boating activities in New Zealand. It is also clear that much of this activity goes on in isolation and would benefit from co-ordination between organisations involved in similar activities. Much of the information to be promoted is common to all boating areas and this fact makes producing generic resources a logical development.

International recreational boating management

Recreational boating safety is an issue of concern internationally and a variety of approaches are followed in various countries. However, direct comparisons across jurisdictions are often not possible, or are possible only in a limited way.

Of 72 jurisdictions surveyed, New Zealand ranks 19th in terms of fatality rates.

PWC are a safety problem in a number of countries, and have increasing fatality rates following growth in popularity and therefore numbers.

Unlike New Zealand, legislation controlling the ownership and use of recreational vessels is common in other countries and the various measures include:

- registration of craft
- identification of craft
- operator licences
- alcohol and drug restrictions
- safety equipment
- standards of craft construction.

The international trend in the management of recreational boating safety is toward mandatory operator training supported by enforcement.

Causal factors of recreational boating accidents in New Zealand

The most common cause of death while boating is drowning. Drownings from recreational boats have shown a downward trend in the past 19 years, with 16 recorded in 1998 from highs of 37 in 1982 and 1989. Total deaths from recreational boating in 1997 were 21, up on the 4-year average (1994-1997) of 17. Nineteen of those deaths were from vessels of less than 8 m. In 1998 the recreational boating toll was 18.

Absolute figures for fatal recreational boating accidents, when viewed in context with other causes of death in New Zealand, are low. However, these fatalities represent the top of a pyramid of non-fatal accidents of unknown size. Given that reporting rates for non-fatal accidents are extremely variable, and it is suspected that a significant degree of under-reporting occurs, it would be easy to arrive at a distorted picture.

Reports of fatal and non-fatal accidents were analysed against boat population data to compare reported and expected representation in accidents according to population size. The analysis sought to identify the causes of accidents, common features within and between fatal and non-fatal accidents, and recurring factors within the selected reports.

The causal factors apparent most often in fatal recreational boating accidents (for which there is often more than a single cause) are inadequate safety equipment (79%), adverse weather or sea conditions (53%), and operator error (34%). This leads to the impression that New Zealand boaters

are ill-equipped for the environmental conditions, both in terms of the safety equipment they carry and the knowledge and skill required to make sound decisions in difficult situations.

In non-fatal accidents, the inadequacy of safety equipment was not crucial, with the situation being resolved before a fatality occurred. In this way, safety equipment can be seen as vital to preventing fatalities, but less important in preventing accidents. The progression from non-fatal to fatal accident may be determined by whether the safety equipment is available for use.

Accidents involving adverse weather or sea conditions may also have resulted in fatalities if the rescue had been delayed.

A higher rate of operator error was identified in non-fatal accidents (61%) than in fatal accidents (34%), which was likely to be because the operators were available to discuss the accidents and take ownership of the cause.

In dinghies, capsizes and falls overboard were causal factors in 40% and 45% respectively, of the fatal accidents analysed. In non-fatal accidents these causes related to 7% and 21% respectively, suggesting that a significant number of non-fatal falls overboard were not reported. Anecdotal evidence suggests that falling overboard is considered by boaters to be an incident of low significance or of embarrassment, and therefore the accident is not reported. Statistically, however, this may be the most dangerous event to occur from a dinghy.

Vessels between 4 and 8 m length had more fatal accidents involving mechanical/structural failure (40%), speed (25%) and sinking (25%). This was supported by a significant number of non-fatal accidents of the same types.

In non-fatal accidents, collisions (44%) caused by failure to keep a proper lookout were a leading causal factor. Structural/mechanical failure (35%) was also an important factor and was often related to the collision. Collisions included contact with submerged and fixed objects.

Keel yachts reported a significant number of non-fatal accidents involving adverse weather. This was supported by the proportion of fatal accidents involving adverse weather.

Safety management options

Based on the causal factor analysis, 13 recreational boating safety management strategies, including the status quo, were evaluated to assess their potential

contribution to the prevention of the accidents analysed: participant awareness, education, carriage of safety equipment, alcohol guidelines, practical vessel usage guidelines, segregation, vessel stability and flotation, enforcement, boat identification, operator licensing, boat registration, and vessel care and maintenance.

*Two safety management options emerged from the analysis as most likely to impact upon both fatal and non-fatal accidents: **improved operator knowledge and requiring the use of safety equipment**.* An economic evaluation of these options in both a voluntary and compulsory scenario established that they were likely to meet the “reasonable cost” criteria established by the Government, and were worthy of further investigation. Often more than one safety management option could have had an impact on the outcome of the accident.

Insufficient or inappropriate operator knowledge was identified as a causal factor in 90% of fatal and 88% of non-fatal recreational boating accidents (36 and 137 accidents respectively over a 4-year period). Safety strategies that involve *improving or targeting operator knowledge* may therefore be pivotal in preventing these accidents. Three options for achieving this have been identified:

- *Increased and targeted participant awareness campaigns:* knowledge of and compliance with a simple message about safe boating practice and the necessity of carrying and using safety equipment could in many cases have affected the outcome of the accident. Examples include “always wear a lifejacket in small boats”.

Coupled with:

- *Increased voluntary participation in formal boating education courses and qualifications:* this could be achieved by greater targeting and promotion of courses. A lack of knowledge about more complex boating safety concepts such as stability was identified as a key factor in some accidents.

Or

- *Compulsory education* controlled by, for example, operator licensing. It is possible that if education is voluntary, there may be limited take-up and therefore the safety benefits would be reduced. Operator licensing could require a certain level of knowledge and/or experience for operators of vessels.

Requiring the carriage and use of safety equipment was also identified as an important option for the

reduction of fatalities. Personal Flotation Devices (PFDs) and at least one method of distress communication were judged vital in 75% of fatal accidents. In particular, 85% of fatal accidents involving vessels under 4 m in length could have been prevented if safety equipment had been available and used.

While inadequate safety equipment was judged as a key factor in only 15% of non-fatal accidents, it was considered that this may have been because circumstances were such that the safety equipment had not yet become necessary; the situation was rescued in time. The progression from fatal to non-fatal may, however, be determined by whether or not the safety equipment is available.

An economic evaluation indicates that each of the safety equipment and education options, across all vessels, appears to meet the reasonable cost criteria and is worthy of consideration. The break-even point, in terms of lives saved, for each option ranges from 0.4 lives per annum for voluntary safety

equipment, through to 1.3 lives per annum for each of compulsory safety equipment and voluntary education, to 3.1 lives per annum for compulsory education.

An issue of particular concern for the maritime and general community has been the behaviour and safety of PWC users during interaction with other water users. In the 4-year period 1994–1997, one fatality occurred which was caused by a PWC. In this analysis the death is recorded in the “Other” category of vessels because the victim was operating a kayak at the time of the accident. In 1998, four PWC-related fatalities occurred. If all five fatalities were included and classified as PWC accidents in the overall accident statistics, PWC would claim 6% of all fatal accidents, from a population base of 4.1% of all recreational vessels. There is a far greater safety problem with dinghies and boats less than 4 m in length.

The predominant issues in complaints about PWC are noise nuisance, followed by a perception of



danger caused by the public's unfamiliarity with the vessel's operating characteristics. As these craft are relatively new on the recreational boating scene in New Zealand, it is to be expected that they are viewed with some concern.

The Water Recreation Regulations 1979 apply to all small craft, including PWC. These regulations are mirrored in bylaws in all regions and provide a system for controlling PWC. Regional councils can now require all PWC operated on their waterways to show identifying marks.

Collisions involving PWC can be addressed by enforcement of the Water Recreation Regulations 1979 requirement that vessels operating within 30 m of other craft and swimmers in the water must maintain a speed of not more than 5 knots. Similarly, all vessels operating within 200 m of the shore must comply with the 5 knot maximum speed rule.

Boat identification and *Boat registration* would not have prevented any of the accidents analysed, but this does not mean that these management strategies do not have a place in controlling recreational boating in New Zealand. Neither of these two strategies directly contributes to accident prevention, but they may contribute to boating safety in less direct ways; for example through facilitating enforcement activities. This in turn may contribute to the development of a mature boating safety culture.

Conclusions

Recent developments in international boating safety management have been toward operator training requirements and increased education supported by enforcement systems including boat registration. Efforts to change behaviour by increasing operator knowledge are seen, internationally, as useful long-term investments. Such improvements can be seen in changes in drink driving behaviour in land transport in New Zealand. A high volume of regulatory control does not, however, appear to equate to low boating fatality rates internationally, making it difficult to judge if legislation necessarily improves boating safety.

Internationally, no means other than monitoring fatality rates is available to evaluate the effectiveness of recreational boating safety management systems. A combination of strategies including vessel registration, operator licensing, drug and alcohol testing, carriage of safety equipment, standards of craft construction and general boating safety

education, are being employed in an effort to reduce fatalities.

Safety management efforts which address a lack of safety equipment and lack of operator knowledge are likely to have the greatest impact on the New Zealand recreational boating community's safety record.

Resourcing of some current boating safety initiatives is on a year by year basis which makes strategic planning difficult. Secured sources of funding are a requirement of any new boating safety strategies, with particular consideration to be given to the role of regional councils in the management of recreation resource issues and local enforcement of national boating regulations.

Recommendations

Safety equipment

Noting that the carriage and use of safety equipment has emerged as the key option from the Group's analysis, providing the greatest potential safety benefits within the reasonable cost criteria, the Group recommends:

- The introduction of national legislation requiring the compulsory carriage of sufficient PFDs for all persons on board for all recreational craft.

The Group further strongly recommends:

- the wearing of PFDs in at least the following circumstances and/or by the following groups:
 - when operating all types of small open recreational craft¹⁰
 - in rough seas or adverse weather, crossing bars at river or harbour entrances, and on fast flowing rivers
 - in any other situation where the skipper, in fulfilling his/her responsibilities as set out in section 19 of the Maritime Transport Act 1994¹¹, deems necessary.

Noting the opportunities afforded by recent changes to legislation [Local Government Amendment Act (No. 2) 1999] which allows regional councils to take a more direct role in the enforcement of boating regulations, both existing and as proposed in this report, the Group recommends:

- An increase in local enforcement capability (which is in addition to the honorary launch warden system).

¹⁰ This includes dinghies, tenders, PWC, kayaks, canoes, rafts.

¹¹ The relevant part of section 19 Maritime Transport Act 1994 is: "The master of a ship shall be responsible for the safe operation of the ship on a voyage, the safety and wellbeing of all passengers and crew, and the safety of cargo carried;..."

The impact of these changes should be monitored for effectiveness in reducing recreational boating fatalities. If set targets are not achieved, compulsory wearing of PFDs should be reconsidered.

Education and public awareness

Given the extent to which the Group's analysis showed that greater operator knowledge and awareness of safety-related issues would impact upon safety outcomes, the Group recommends:

- Increased levels of targeted recreational boating safety initiatives and education programmes, with a particular focus on issues identified as important in the Group's analysis (including the use of PFDs).

The Group notes that in the case of PWC the priorities would be to raise the awareness of PWC users about PWC use, including the effects of "off-throttle steering", noise nuisance and the requirements of existing legislation.

While the Group recognises that greater public awareness and adoption of self-responsibility for safety are important in creating a safety culture among recreational boaters, the Group nevertheless recommends:

- That the impact of these education initiatives be measured against agreed safety targets (including but not limited to reductions in fatality rates and increases in uptake of structured courses) over a 5-year period.

In the event of the boating community failing to meet these targets, the Group recommends:

- That the introduction of a form of compulsory boating safety education be reconsidered.

The Group further recommends:

- That the Canadian system of compulsory boating safety education, recently introduced, be monitored for success in Canada and possible future implementation in New Zealand.

Resourcing

The Group notes that the majority of the costs (as detailed in the cost-benefit analysis outlined in the report's section 10.3) associated with implementing the above recommendations lie with recommendations 13.1 (safety equipment and enforcement) and 13.2 (education and public awareness). The costs of implementing these (as an average per year, in today's dollars) are estimated as follows:

COSTS TO SAFETY ORGANISATIONS

- Publicity associated with voluntary education \$1,000,000
- Publicity associated requirement to carry PFDs \$155,000
- Cost of increased enforcement \$527,850

Making a total cost of \$1,682,850 per year.

COSTS TO INDIVIDUALS

- Purchase of PFDs \$3,544,775
- Course fees¹² \$327,590
- Value of time to take courses¹³ \$87,747

Making a total cost of \$3,960,112 per year.

The Group also notes that although the majority of costs lie with individuals, they are primarily related to the purchase of PFDs, which have a relatively low unit cost.

Recognising the already heavy financial burden in promoting boating safety on the various (government and non-government) safety organisations, the Group recommends:

- That increased funding be provided to support the implementation of these safety management options.

The Group also recommends:

- That the role of local government in recreation resource management and local enforcement of national boating regulations be recognised by addressing regional resourcing needs.

Possible sources of funding include:

- petrol excise
- alcohol excise
- consolidated Fund
- regional government levies
- Lotteries Grants Board.

National co-ordination

The Group recommends:

- That the MSA organise and facilitate a meeting among all recreational boating safety-focused organisations in order to establish a formal network to promote and co-ordinate recreational boating safety efforts in New Zealand.

The Group notes that there are a number of regional and national organisations in New Zealand collectively applying considerable resources to promoting recreational boating safety, both voluntarily and through statutory responsibilities, but

¹² The cost in this case is that of persons taking courses who, without the introduction of the voluntary education option, would not voluntarily take courses.

¹³ This cost is the opportunity cost of time taken for persons who would not otherwise take courses, to take courses. The quantifiable measure of this time is taken from Transfund's estimates for roading purposes of \$7 an hour for non-work time.

there is limited regional or national co-ordination of these resources.

The first meeting of the network should establish the terms of reference and leadership mechanisms.

The Group should undertake, as one of its first tasks, the development of targets and measures of safety against which to judge the effectiveness of compulsory carriage of PFDs and increased levels of voluntary education. These measures should then be used to adjust awareness and education programmes to achieve the desired outcome of reduced fatalities from recreational boating accidents.

Vessel stability and flotation

The Group recommends:

- That the MSA, as the regulatory body associated with recreational boating, work with the Boating Industries Association and other interested parties to increase understanding of vessel stability and flotation issues amongst boat designers, builders and the boating community.

Such initiatives should be brought to the attention of the formal network of recreational boating safety-focused organisations referred to in recommendation 13.4¹⁴.

Practical vessel usage guidelines

The Group recommends:

- That the national recreational boating safety network (referred to in recommendation 13.4) develops and promotes practical vessel usage guidelines.

These should represent best practice advice with which small vessel operators in particular may judge the appropriateness and suitability of weather and sea conditions.

Vessel care and maintenance guidelines

While concluding that there is limited justification on safety grounds for the introduction of a legislative requirement for recreational vessels to receive regular maintenance checks of structure or mechanical equipment, the Group is concerned about the high numbers of mechanical breakdowns reported by recreational vessels. The Group recommends:

- That vessel care and maintenance guidelines be developed by the formal network of recreational boating safety-focused organisations referred

to in recommendation 13.4, and that these guidelines be widely disseminated to the recreational boating community.

Launch wardens

The Group, noting the legislative changes introduced by the Local Government Act Amendment (No.2) 1999 – in particular the ability of a regional council to regulate all waters within its region by developing navigation and safety bylaws, and the provision for infringement notices in relation to breaches of those bylaws – recommends:

- That the launch warden system be further developed and rationalised, as appropriate, under the control of the relevant authorities, working to consistent national standards.

The system should include the following components:

- consistency of approach, powers and responsibilities among all launch wardens, whether regional council or MSA appointed
- ongoing training, monitoring and co-ordination of launch warden activities at a local, regional and national level
- a selection and support system for launch wardens that recognises the unique problems and perspectives of the launch warden system and the volunteers that are at the heart of its success.

The Group further recommends:

- That the need for the development of the launch warden system, and the components detailed above, be brought to the attention of the formal network of recreational boating safety-focused organisations referred to in recommendation 13.4.

Alcohol guidelines

The Group recommends:

- That the issue of alcohol use while boating be the subject of further research to better determine the extent of linkage between alcohol use and boating safety, and that alcohol be the subject of a focused safety awareness campaign based on the outcome of the research undertaken.

While there is considerable evidence within other transport modes of the detrimental effect of alcohol on safety, there is only very limited information available as to the impact that alcohol has on safety within the recreational boating sector. The information that is available suggests that it is a contributing factor in some fatalities, but further

¹⁴ Reference to "recommendation 13.4" relates to "Chapter 13 Recommendations" and is the same recommendation which appears in the Executive Summary as "2.8.4 National Coordination". This recommendation led to the formation of the NPBSF.

research is needed to determine the extent of that contribution.

Data collection

The Group recommends:

- That the MSA take the lead in defining and co-ordinating the recording of recreational boating fatality and accident figures.

While recognising that a wide range of data on recreational boating issues is currently being collected, there is a need to co-ordinate this information and develop a comprehensive database of all recreational boating accidents, incidents, fatalities and injuries to ensure the accurate monitoring and evaluation of safety trends. Noting that the Australian National Marine Safety Committee (NMSC) co-ordinates the collection and standardisation of recreational boating data collection in Australia, the Group recommends:

- That the NMSC approach to data collection and standardisation be examined for possible lessons for New Zealand.

The Group recommends:

- That the collated recreational boating information be made available to all organisations and individuals concerned with developing a recreational boating safety culture in New Zealand.

The Group also recommends:

- That the availability of this information be publicised and made available to academic and other researchers, that the data storage system be sufficiently flexible to provide a wide range of information, and that the system be capable of ongoing refinement.

Separation of activities

The Group supports and encourages local authorities in the use of activity separation as a tool for the management of recreational water use (as provided for in the 1999 amendment to the Local Government Act). In particular, the Group supports and encourages local authorities in their continuing development of appropriate PWC management initiatives such as setting aside specific areas and enforcement of existing legislation, and notes that considerable resources are being applied to the control of PWC.

The Group recommends:

- That such initiatives be brought to the attention of the formal network of recreational boating safety-focused organisations referred to in recommendation 13.4.

Boat identification and registration

Considering the low direct safety benefits that boat identification and registration contribute, the Group recommends:

- That these options not be implemented on a national basis unless there is evidence in the future justifying implementation.

The Group notes that recent legislation allows for the identification of PWC and recommends:

- That the PWC situation be closely monitored until safety related information compels a rethink and the need for further legislation evaluated.

Social implications (including Māori and gender issues)

The Group recommends:

- That the social and financial impacts on both individuals and groups of any safety management options be considered in the final design and implementation of these options, bearing in mind that to exempt any recreational boating participants from compliance would remove the safety benefits from those persons.

Appendix 2

Recreational boating on-water hours¹⁵

Calculation of number of hours recreational boats spend on the water

During summer (6 months)

ALL DESTINATIONS

41% take a trip weekly = 52 times a year = 26 times in the 6 months

35% take a trip monthly = 12 times a year = 6 times in the 6 months

65% take a trip "occasionally" = 6 times a year (eg less than monthly on average) = 3 times in the 6 months.

Total recreational vessel population = 269,131.

So 110,344 vessels x 26 trips = 2,868,944 trips

and 94,196 vessels x 6 trips = 565,176 trips

and 174,935 vessels x 3 trips = 524,805 trips

making a total of 3,958,925 trips during summer.

During winter (6 months)

ALL DESTINATIONS

10% take a trip weekly = 52 times a year = 26 times in the 6 months

20% take a trip monthly = 12 times a year = 6 times in the 6 months

91% take a trip "occasionally" = 6 times a year (eg less than monthly on average) = 3 times in the 6 months

So 26,913 vessels x 26 trips = 699,738 trips

and 53,826 vessels x 6 trips = 322,956 trips

and 244,909 vessels x 3 trips = 734,727 trips

making a total of 1,757,421 trips during winter.

Total trips per year = 5,716,346.

Multiplied by time @ 12 hours (see logic in other paper) = 68,596,152 hours

Divided by population @ 269,131 = 255 hours per vessel (all locations)

This is 4.9 hours per week on average; 37% of the time commercial vessels spend on the water.

Note: The figure of 255 hours per vessel shown above is for **all** recreational craft, and is not to be confused with the 176 hours per vessel that applies to **recreational craft operating outside enclosed waters**, as used to calculate distress and safety radio/aids to navigation costs in section 2 of the review.

¹⁵ Calculated in 2002

Appendix 3

Summary of New Zealand legislation applicable to recreational craft

Maritime Transport Act 1994

Section 19 Duties of Master

The master of every vessel is responsible for safety and for complying with all maritime rules and regulations applicable.

Section 21 Pleasure craft departing for overseas

Every New Zealand pleasure vessel departing for a foreign port must be registered. The boat, equipment and crew must meet set safety standards.

Section 31 Obligation to notify all accidents, incidents, etc

The master of every vessel must report all accidents, incidents and mishaps to MNZ.

Section 32 Duty to assist persons in danger and to respond to distress calls

The master of any vessel must render assistance to any person in distress but is not required to place their own vessel in serious danger.

Section 55 Detention, etc, of ships and maritime products

MNZ can detain any vessel or maritime product, or impose conditions on its use, provided there are clear safety grounds for doing so.

Section 65 Dangerous activity involving ships or maritime products

It is an offence to operate or maintain any vessel or maritime product in a way that causes any unnecessary danger or risk to any other person or property, irrespective of whether any injury or damage occurs.

Maritime Rules

Maritime Rules Part 22: Collision prevention

The Collision Prevention Rules are international and apply in all navigable waters at all times.

Maritime Rules Part 91: Navigation safety and Navigation Safety Bylaws

Where local authorities have taken jurisdiction and Navigation Safety Bylaws are in place, Maritime Rules Part 91 does not apply. Navigation Safety Bylaws carry the same legal status as a maritime rule. They must not conflict with Maritime Rules Part 91.

Marine pollution regulations

Made under the Resource Maritime Act, these regulations apply restrictions to the discharge of sewage, garbage and other substances from small craft into the sea.

Appendix 4

Benefits and disadvantages of boat registration and skipper licensing

This appendix identifies and discusses the benefits and disadvantages of compulsory registration and mandatory skipper licensing for pleasure boats in New Zealand.

Boat registration

Benefits

- The boat registration fee would provide a source of funding for recreational boating matters. The lack of funding for safety organisations (such as Coastguard) and for promotion of safety has long been an issue for both central and local government. A secure source of funding that is reliable is needed.
- The efficiency of search and rescue would possibly be improved through better vessel identification.
- Boats could be visually identified by a unique number.
- Boat operators would behave better knowing they could be identified. Identification of craft has very wide support. While misbehaviour is limited to a small number of boaties (estimated at 5%), a system of identification would tend to reduce poor behaviour and help target those who offend. (The possibility of having mandatory identification on boats with no registration or database has yet to be considered. Auckland Harbour Board required all boats to be named in about 1970, but this was not actively enforced.)
- Safety messages could be targeted to boaties. At present, important safety messages and new rules and bylaws can come into force with some boaties being unaware of them.
- Identification and a database would assist harbourmasters and other authorities with policing regulations. It would also help with tracing stolen craft and abandoned or lost vessels.

Disadvantages

- Recreational boat owners provide about \$20m to government in road taxes on fuel each year, and an additional tax would be unpopular.
- The large majority of boat operators who behave well have reservations about having a system imposed on them.
- Deciding which boats would be registered is difficult. Those small vessels that are most at risk (such as kayaks and dinghies) are the least likely to be registered. Exempt vessels will not benefit from the initiative.
- Any legislation affecting leisure activities is politically difficult. As a historical example, when a tax was imposed on boat sales in 1981 there was considerable discontent, and the boatbuilding industry suffered a significant economic downturn.
- There are enough regulations and rules that apply to recreational boating already. Only in recent years have these measures been applied consistently.
- There is minimal known safety benefit from a registration system. No other jurisdiction claims that registration has reduced accident numbers or fatalities.
- Many of the advantages of a registration system are limited to a few busy areas, such as Tory Channel, Queenstown, Takapuna, and busy beaches over a month or two in summer.
- The cost of administering a registration system would be at least \$50 per boat annually. This spend could be better used by boat owners for safety equipment.

Skipper licensing

At present there is no requirement for any qualification to operate any pleasure boat within New Zealand. Pleasure craft on international voyages must have a skipper and crew who are certified as capable and trained to undertake the voyage.

Benefits

- Better educated boaties would reduce the number of accidents and incidents, which would lead to fewer injuries, fatalities, damage and pollution.
- Greater awareness of safety issues would lead to safer behaviour and better decisions.

Disadvantages

- There seems little need for formal education and a test in order to understand the issues that lead to fatal accidents, which are very basic:
 - lack of lifejackets
 - lack of effective communications
 - going out in bad weather
 - misuse of alcohol.

Lack of knowledge of other boating issues has not been apparent in many boating accidents. A less formal safety awareness programme may be more cost-effective and achievable than skipper licensing.

- Lack of awareness of safety matters, rather than lack of knowledge of rules, is the prime cause of fatalities. Just one death out of the last 120 was due to lack of knowledge of the collision rules. Many accidents are due to failing to keep a lookout.

- Greater knowledge does not always lead to better behaviour (as “boy-racers” in cars demonstrate).
- Policing a skipper licence system would almost certainly require a vessel registration system.
- Jurisdictions that have a boat driver licence requirement set the standard of learning and testing very low. This leads to a false sense of security in those who have a licence. They think they know enough and tend to avoid additional education.
- Jurisdictions that have introduced licensing do not show any clear correlation between licensing and a reduction in fatal accidents.
- Deciding who needs a licence is not simple. No country requires licences for skippers of manually or sail-powered boats. Often only skippers of power boats capable of exceeding 10 knots, or those with a horsepower over a set figure, are required to be licensed. This removes the safety benefit of a licence from those who are the most at risk and often the least experienced.
- Over time the focus inevitably moves from safety messages to policing of who has a licence. The cost of policing proactively is very high, and given present public feeling, a compulsory scheme would be unlikely to succeed without active policing.
- Current legislation already requires skippers of all boats to know the rules and comply with them, and has penalties for non-compliance. A licence would only introduce a test to check that the knowledge is adequate.
- Supporters of licensing often see the need for operators of larger and faster craft to have a licence. But most fatal accidents occur in smaller, often manually-powered, craft.

Appendix 5

International comparisons

Fatality rates 2000-2006

Fatalities per 100,000 pleasure boats:

- Australia: varies by state; overall, between 2.5 and 5
- Canada: 6 down to 5.5
- New Zealand: 7 down to 3
- USA: 6.5 currently
- Sweden: 5.0 currently
- UK number of boats not available.

Fatalities per million participants in the UK is 5.6 (same as NZ in 2007)

This data is indicative only, due to variations in data collection.

The effect of water temperature has not been researched in relation to boating fatality rates. However, preliminary data collected from outside New Zealand suggests a much lower likelihood of boating fatalities where the sea temperature exceeds 25°C.

Changes in legislation since the 1999 report

Australia

Lifejackets

Tasmania has introduced compulsory wearing of lifejackets in all power craft less than 6 m in length while underway. State marine authorities credit this initiative alone as being instrumental in reducing boating fatalities from five per year to about one per year. They also have an active ongoing education campaign. The population of Tasmania is 450,000.

The coroner in Victoria recommended mandatory wearing of lifejackets in all recreational craft at all times following inquests into a number of fatalities each year over an extended period. In December 2005 Victoria introduced mandatory wearing of lifejackets at all times on all recreational craft under 4.8 m, and on larger craft when there is heightened risk.

Operator licences

In 1999 four states (New South Wales, Tasmania, Queensland and South Australia) required skippers of most recreational power craft to hold an operator qualification. In 2003 Victoria introduced this requirement, and from 2006 it has been a requirement in West Australia. While most states require licensed skippers only for craft capable of over 10 knots or those over 10 horsepower, Queensland has extended the requirement to all power craft. There is no licence requirement in Australia for non-powered recreational craft.

Registration

All states except Northern Territory require most power craft to be registered. The prime reason is to provide funding for the administration and safety of recreational craft. Most states have mandated that some or all of the funding raised must be put back into boating safety. Further benefit is obtained from vessel identification and ease of policing. Targeted safety messages can be directed to owners of those craft required to be registered.

Northern Territory requires neither registration nor skipper licensing. There is a requirement for carriage of lifejackets.

Alcohol

All states in Australia except Northern Territory have an alcohol limit for skippers of all craft underway that is the same as for driving a motor vehicle (0.05gm/ml blood alcohol concentration (BAC)). Victoria has a BAC limit of zero for skippers under the age of 21. In addition, some states have introduced random breath testing rather than testing only when an incident has occurred.

Enforcement

Enforcement is undertaken by a combination of on-water police and dedicated boating safety officers. In some states, difficulties with this arrangement arise from the increasingly strict policy of the police, which is at times inconsistent with the "safety advice" approach of Boating Safety Officers.

United Kingdom

Skipper licences and registration

There is no requirement for vessel registration or skipper licensing in the UK, although many European Union (EU) states have also introduced them.

Alcohol

Britain has introduced a BAC limit for skippers of commercial craft the same as for car drivers, and more recently applied it to skippers of some recreational craft. Police and harbourmasters are able to breathalyse skippers who come to their attention.

Enforcement

Since 2004, the Marine and Coastguard Agency (MCA) has severely clamped down on recreational skippers who behave recklessly, and it has taken a series of prosecutions. Examples of penalties imposed recently include 4 months prison for a small craft operator who collided with a buoy, injuring two crew members; and 6 months for a PWC rider who collided with another PWC, causing injury. (This was recently overturned on appeal by a court that determined PWCs in Britain do not meet the definition of a “ship”). Heavy fines have also been imposed for non-injury collisions and for failure to report accidents. Patrol officers in some areas carry radar speed guns. Automatic prosecutions or infringement notices and fines follow all cases where a skipper puts people at risk, or passes too close ahead of ships.

Other EU countries

There is a directive regarding the standard and quality of the design and construction of all recreational vessels. No other legislation applies to all recreational craft in the EU.

The requirements of each country vary across a spectrum, with France introducing extensive rules in 2005. All recreational vessels (including rowboats and kayaks) that operate more than 300 m from shore, and any that have a motor over 3 kW (5HP) must be registered. The long-term benefit from this initiative has not been assessed to date.

Canada

Operator licences

In 2000 Canada introduced the requirement for operators of recreational power craft over 10 horsepower to have a licence based on a test following a period of mandatory tuition. The licence has a phase-in period of 10 years depending on the age of the person and the type of craft operated with an immediate requirement for operators of PWC to hold a licence.

Shortly after the scheme was introduced, the mandatory attendance at a course of tuition was dropped following lobbying by the boating public. Since that time the scheme has been slow to advance. Until 2004, operator licensing was handled by the national coastguard. A number of difficulties in introducing the scheme were encountered, including financial constraints and user resistance. Administration of the scheme is now in the hands of the transport ministry.

Vessel registration

All recreational power vessels that have engines over 10 horsepower are required to be registered. This is done at no cost to the owner. Registration takes place at the local customs office and it is a “paper-based” system with no central register.

Canada is currently looking at making this a national electronic system. However, the cost-benefit is felt to be “prohibitive” and Canada is considering whether to continue with the proposed scheme or allow it to lapse.

The reasons given for having boat registration

Approximately half those countries with reasonably similar boating profiles to New Zealand have introduced compulsory registration of pleasure boats.

No country has a requirement for all pleasure boats to be registered. Many restrict the requirement to vessels with a motor over a certain horsepower. Nearly all jurisdictions exempt sailing vessels.

In nearly all jurisdictions, the raising of funds is the prime reason for having registration. Normally, all or most of the revenue raised is used to manage the system, with any surplus being used for the benefit of the boating community.

Other reasons given in support of registration in other jurisdictions include:

- easy identification for enforcement purposes
- targeting of education messages by direct mail
- easier tracing of stolen craft
- improving efficiency of search and rescue
- facilitating unsafe product recalls
- improved behaviour of some operators on the water, because they could be called to account
- consistency with government “user pays” policies
- the recreational sector should match the commercial sector in paying an annual Marine Safety Charge (MSC)
- other vehicles have to be registered, so the same should apply to boats
- without registration, some other form of raising revenue for essential services such as boating education support, navigation aids, radio communications and search and rescue will have to be found.

The reasons for opposing registration include:

- the large scale of the undertaking, with a successful scheme requiring the formation of a national database for up to 350,000 boats, in the case of NZ
- the difficulty of identifying which boats should be registered and which should be exempt, bearing in mind that any benefits from the scheme would be denied to those who were not registered
- little benefit would accrue to those most at risk, since a disproportionate number of fatal accidents occur in small boats such as dinghies and kayaks, which are unlikely to fall within a registration system
- a registration scheme would be unlikely to alter the behaviour of the very small proportion of boat skippers who behave in an unsafe or discourteous manner (by analogy with driver behaviour on roads)
- the cost of administering the system would be significant, and registration has not been shown to be cost effective
- without the significantly increased enforcement that would be required to check on registration, a significant proportion of those who own small craft (such as dinghies with outboard motors) would be unlikely to comply
- enforcement is expensive given the diversity of boating areas coupled with small-boat usage that tends to be seasonal and intermittent
- enforcement of a registration system would most likely be given equal importance to the enforcement of safety regulations
- public resistance to any form of what is seen as “bureaucracy” and “loss of freedom” is strong in the recreational boating sector – in New Zealand approximately 70% of those who replied to a public consultation document sent out during research for the PBSAG report indicated that they opposed registration
- in other jurisdictions where registration has been introduced, there is no clear indication that the number of fatalities or accidents has been reduced as a result; there is no case of an accident in NZ where registration, or some form of unique identification on the boat, would have prevented a death
- unlike car accidents where innocent third parties are at considerable risk, in a boating accident the victim is very often the perpetrator of the unsafe behaviour.

Questionnaire responses from Australia and Canada

The following questions were put to the Managers of Recreational Boating in six Australian states (Northern Territories has no registration system), and to the Superintendent of Boating Safety in Canada. A summary of the answers received follows each question below.

1 What was the principal reason for introducing registration of pleasure craft?

Victoria	The original intention is unknown, but it is used to fund services and facilities for boating.
New South Wales	Introduced in 1962 to identify offenders.
Queensland	To keep track of pleasure craft and to provide income.
Tasmania	To provide revenue for boat safety programmes and for identification of boats.
South Australia	Introduced in 1975 after an accident where five people died. Its current purpose is to provide revenue and identification.
West Australia	It provides funding for a wide range of facilities according to a set programme. Introduced in 1972.
Canada	For identification purposes.

2 What other benefits are derived from registration?

Victoria	\$1m is invested each year in facilities for boat owners.
New South Wales	Identification of high-speed vessels; a source of funding for navigation aids, enforcement officers and education.
Queensland	Income from fees and ability to track offenders.
Tasmania	It is the only source of income for recreational boating services and it allows direct contact between the state and boat owners. It also assists enforcement.
South Australia	It deters theft.
West Australia	Identification of owners for enforcement and educational purposes. It also assists research but the prime reason is revenue.
Canada	Identification of stolen boats, SAR and enforcement purposes.

3 What boats are registered? Is this done by size, type etc?

Victoria	All vessels that have an engine. Others such as sail, oars or paddles are exempt.
New South Wales	All recreational vessels over 5.5 m in length, and all power boats with a motor larger than 5 HP (3.5 kW).
Queensland	Any boat with an engine over 4 HP (3 kW).
Tasmania	All vessels equipped with a motor over 4 HP (3 kW).
South Australia	All vessels equipped with a motor.
West Australia	All vessels equipped with a motor, but low-powered boats that are tenders to larger vessels are exempt.
Canada	All pleasure craft with an engine over 10 HP (7.5 kW) must be licensed by the customs office in each district or city. There is no national database.

4 What annual fee is paid? Does it vary with size or type of vessel?

Victoria	Boats under 4 m: \$30. Boats over 4 m: \$60. A \$13 change of ownership fee applies.
New South Wales	PWC: \$230. All other craft: \$40 for vessels under 3 m plus \$15 for each additional metre of length. (The same fees apply to commercial vessels.)
Queensland	Under 4 m: \$50, increasing with boat size.
Tasmania	\$50 regardless of the boat size.
South Australia	\$65 (\$85 for a new registration) regardless of size.
West Australia	\$55 for small craft up to \$275 for vessels over 20 m.
Canada	The licence for a recreational boat has no fee.

5 What annual income is generated by registration?

Victoria	Approximately \$6m. Of this, \$2m is provided to the Marine Safety Office, with the remainder transferring to the state consolidated fund.
New South Wales	\$13.5m
Queensland	\$11m
Tasmania	\$1.1m
South Australia	\$3.5m
Canada	Nil

6 How many registered boats exist in the state? How many other non-registered pleasure craft are estimated to exist?

Victoria	There are 148,000 registered craft, with an additional estimated 100,000 non-powered craft.
New South Wales	196,000 recreational craft are registered plus an estimated 130,000 vessels exempt from registration.
Queensland	180,000 registered craft, with an unknown number of non-registered vessels.
Tasmania	21,500 registered craft and an estimated 4,000 non-registered.
South Australia	51,000 on the register. Other numbers are unknown.
West Australia	80,000 currently registered (plus 30,000 not currently financial; of these about 3,000 are active).
Canada	Over 3.5m licensed craft plus an unknown number of vessels exempt from licensing.

7 What is the cost of collecting registration fees and administering pleasure boat registration?

Victoria	\$540k per annum is paid by the Marine Safety Office to the state transport authority, who also administer automobile registration.
New South Wales	Not known
Queensland	Administration expenses are estimated at \$3.5m.
Tasmania	Unknown
South Australia	\$200k pa
West Australia	Estimated \$360k
Canada	Currently \$1.3m pa. There is a plan to introduce a national electronic database that will require one-off funding of \$35m. This proposal is still being considered and one option is to remove the requirement for licensing pleasure craft.

8 What is spent annually on enforcement and what is spent on education for boaties?

Victoria	Marine Safety Office spends \$870k on enforcement using the Water Police. Education and safety awareness is not funded from the Registration levy. However, approximately \$3.2m of funding by the fees from skipper licensing is spent on education each year.
New South Wales	The Authority employs 55 boating officers whose duties include education. \$740k a year is spent on education and safety publications.
Queensland	Enforcement is estimated at \$2m. Approximately \$500k of funds generated by registration is spent on education.
Tasmania	This is mainly carried out by the Marine Police and is not recorded. Education programmes receive \$130k.
South Australia	\$1.6m on enforcement and education.
West Australia	\$300k on all benefits including education. Enforcement is carried out separately.
Canada	Enforcement varies from province to province. Infringement notices are used in some, but where a prosecution is required, costs dictate that few offences are taken to court. This is done by police and the cost of maritime policing is not identified.

9 What is of direct benefit to boat owners by way of ramps, beacons, charts etc?

Victoria	Facilities such as boat ramps, jetties, signage and beacons.
New South Wales	Facilities such as boat ramps and beacons as well as free chartlets and education material.
Queensland	An extensive system of beacons and a large number of boat ramps.
Tasmania	\$220k is allocated for facilities and boat owners and clubs are invited to apply for funding for appropriate initiatives. A further \$150k is spent on navigation aids, partly funded from registration fees and partly by commercial vessel levies. Education is also funded throughout the state.
South Australia	\$1.3m is provided to non-government groups to spend on facilities.
West Australia	Included in the \$300k, spent on education.
Canada	No specific income from licensing results in no direct benefit.

**10 What other direct or indirect benefits go to boat owners?
Does the state benefit in any other indirect way?**

Queensland	No direct benefits to the state, but registration provides a better system.
Tasmania	The state avoids having to fund any recreational boating programmes or facilities.
South Australia	Funding for a group who resolve disputes and assist with enforcement and education.
West Australia	Charts, boating safety publications, navigation aids, signage, SAR, funding for other boating safety organisations such as Sea Scouts.
Canada	With the fragmented system in place, no benefit results.

11 How would safety be affected if you did not have registration?

Victoria	Minimally
New South Wales	Identification of offenders and lack of income would limit the Authority's ability to improve safety.
Tasmania	Only indirectly, with less funds for government to spend on safety initiatives.
South Australia	Revenue would need to be provided from another source.
West Australia	No funding would be available.
Canada	Costs of SAR and identification of lost or stolen vessels would be more difficult. There is no direct safety benefit at this time.



Appendix 6

Effective communication systems for pleasure boats

The National Pleasure Boat Safety Forum discussed mandatory communications equipment at its May 2006 meeting. Maritime New Zealand was asked to outline what such legislation may include for the purpose of a cost benefit analysis. The following model is suggested. However, wider consultation with the maritime community will be needed to ensure the proposal would meet the practical requirements of an effective rule.

Background

A major review of SAR was undertaken in 2005. The review considered a number of options, one of which was enhanced capability of communications on shore coupled with compulsory means of “effective communication on all craft”.

Purpose of this document

To determine what “effective communication” means in terms of small vessels and where they operate. A number of factors need to be taken into account in making this determination, including:

- provide a basis for the development of a possible rule and advisory note
- what equipment would be needed
- which boats would need to carry that equipment
- areas where the equipment would need to be carried
- whether any vessels would be exempted.

Methods of communication

There has been a marked increase in the number of persons wearing PFDs (personal flotation devices or “lifejackets”) in the past 3 years; however, a significant number of fatalities have occurred due to the inability of distressed people to summon aid following an immersion accident such as a capsizing.

While some form of communication equipment is carried, it is often rendered inoperative by the accident that places lives in danger.

Any means of effective communication that could be included in a mandatory regime would need to fulfil the following criteria:

- operable after immersion
- available and usable following capsizing, swamping or foundering
- practical on small craft including dinghies and kayaks
- an accepted means of distress communication.

The following methods of communication meet those criteria. All are accepted international distress signals except the cellphone, which is widely used to summon assistance in the community. Advice should include the limitations on each method of communication.

- EPIRB
- VHF Radio (hand-held, waterproof or sealed in a plastic bag)
- cellphone (waterproof or sealed in a plastic bag)
- red hand-held flare
- orange smoke flare
- waterproof torch
- whistle
- raising and lowering arms.

All these methods have limitations. Hence there is no one method that is suitable for all distress situations and the effectiveness of each also varies depending on the circumstances.

Legislation in other jurisdictions

The following jurisdictions where pleasure boating is comparable to New Zealand have legislation requiring communications equipment on small vessels. While the purpose of the legislation is

the same in all areas (ie, to provide a means of summoning assistance when needed), each jurisdiction bases its legislation on a different set of factors.

Victoria	Vessel size	Vessel type	Area of operation
New South Wales	Vessel size		Area of operation
West Australia			Area of operation
Canada	Vessel size		

New Zealand: Proposed model for legislation for regulatory impact statement

Developing legislation most suitable for New Zealand will require extensive consultation with the recreational boating industry and public. However, a requirement for legislation will create a relatively small envelope in which to work if the fundamental criteria are to be met, namely the ability for a vessel in difficulty to send a distress message after an immersion accident has occurred.

This proposal considers primarily the area in which vessels operate. It includes the use of water-protected cellphones in areas where there is suitable coverage. It also recognises that in vessels over 6 m in length, capsizes and similar events are very rare occurrences and therefore installed radio equipment provides effective communication.

Proposed model (minimum requirements)

- Vessels operating within 200 m off shore (or on rivers and lakes) by day where there can be reasonable expectation of being seen in case of distress. Vessels that are tenders to larger craft and operating by day between that craft and shore or remain in sight of the parent vessel and where there can be reasonable expectation of being seen in case of distress:
 - Arms signal.

When operating between sunset and sunrise:

- Waterproof torch.

- Vessels operating beyond 200 m but within 3 miles off shore where there is reasonable expectation of being seen in case of distress (day or night):

- Red hand-held flare or water protected cell phone (if cellphone cover is effective), plus waterproof torch.

Where there is not a reasonable expectation of being seen:

- Water protected hand-held VHF radio or, Water protected cellphone (if cellphone cover is effective), plus waterproof torch.

- Vessels operating beyond 3 miles from shore but within 12 miles. Where cellphone cover is effective:

- Water protected cellphone, plus 2 red hand-held flares, plus waterproof torch.

Where there is limited or no cellphone cover:

- Water protected hand-held VHF radio plus 2 red hand flares, plus waterproof torch.

- Vessels operating beyond 12 miles but within 20 miles off shore:

- Water protected hand-held VHF radio plus 2 red hand-held flares plus waterproof torch.

- Vessels operating beyond 30 miles from shore:

- 406 type EPIRB (or SSB radio) plus hand-held VHF radio plus 2 red parachute flares plus waterproof torch.

EXEMPTIONS

- When vessels are taking part in an organised regatta, training, ceremonial or similar activity and are accompanied by a patrol boat, no communications equipment is required.
- Vessels whose overall length exceeds 6 m may, in lieu of a hand-held VHF radio substitute a fixed or installed VHF radio or MF/HF radio.
- In all cases a 406 EPIRB may be carried in lieu of a cellphone and/or a VHF radio.

Appendix 7

The National Pleasure Boat Safety Forum

The National Pleasure Boat Safety Forum meets every 6 months. It is convened and chaired by Maritime New Zealand.

Member organisations

Each member organisation represents a national stakeholder group in the maritime sector.

- Accident Compensation Corporation
- Boating New Zealand (representing marine publications)
- Coastguard Boating Education
- Auckland and Wellington Regional Council harbourmasters and Queenstown Lakes District Council harbourmaster (representing regional councils)
- Kiwi Association of Sea Kayakers (representing the kayaking community)
- Marine Industry Association
- Maritime New Zealand
- Ministry of Transport
- New Zealand Coastguard
- New Zealand Jet Sports Boating Association
- Auckland Police Maritime Unit and SAR
- Toi Māori
- Underwater New Zealand
- Waka ama representative
- WaterSafety New Zealand
- Yachting New Zealand.

Appendix 8

Training and boating safety courses

Coastguard Boating Education Service

Core courses

Day Skipper (15 hours)

Boatmaster (30 hours)

Marine VHF Radio (6 hours)

Maritime Restricted Operators Certificate (8 hours or 2 hour add on to VHF)

Unit standards are available for Day Skipper, Boatmaster and MROC. Contact CBES for details.

Specialty courses

Coastal Skipper (55 hours)

Ocean Yachtmaster (72 hours)

Radar (8 hours)

GPS Operator (8 hours)

Outboard Engine Maintenance (8 hours)

Inboard Engine Maintenance (15 hours)

Race Medic (6 hours)

Coastal Medic (16 hours)

Offshore Medic (16 hours)

Basic Sea Survival (4 hours)

Advanced Sea Survival (16 hours)

Sea Kayak Module (4 hours)

Club Safety Boat Operator (8 hours)

Youth programmes

Safe Boating Programme

Day Skipper Experience

Practical courses

In association with the Royal Yachting Association (RYA).

Personal Water Craft (1 day)

Powerboating (Runabouts, Ribs and other outboard-driven craft)

Level One (1 day)

Level Two (2 days)

Intermediate Powerboating (2 days)

Advanced Powerboating (2 days)

Sail Cruising (Keelers and Multihulls)

Start Yachting (2 days)

Competent Crew (5 days)

RYA Day Skipper Practical (5 days)

RYA Coastal Skipper Practical (5 days)

Motor Cruising (Launches)

Helmsman Course (2 days)

RYA Day Skipper Practical (4 days)

RYA Coastal Skipper Practical (5 days)

RYA/MCA Certificates of Competence

Advanced Powerboat

Coastal Skipper

Yachtmaster Offshore

Yachtmaster Ocean

Commercial and STCW95 endorsements are available for RYA/MCA certificates of competence.

- *Home Study options are available for many theory courses.*
- *CBES also administers specialist training and assessments for Coastguard Rescue Vessel Crew and Masters.*

For more information, see the website:
www.cbcs.org.nz

Yachting New Zealand courses

Sail training

Learn to Sail (Dinghy) Level 1 & 2 (20 – 30 hours)

Learn to Sail (Keelboat) Level 1, 2 & 3
(30 – 40 hours)

NCEA Sailing (Follows Learn to Sail Level 1 & 2)

Instructing

Assistant Learn to Sail (Dinghy) Instructor (Assistant Club Instructor) (18 hours – 2.5 days)

- For teaching Learn to Sail (Dinghy) Level 1 & 2

Learn to Sail (Dinghy) Instructor (Club Instructor) (18 hours – 2.5 days)

- For teaching Learn to Sail (Dinghy) Level 1 & 2

Learn to Sail (Keelboat) Instructor
(18 hours – 2.5 days)

- For teaching Learn to Sail (Keelboat) Level 1, 2 & 3

Coaching

Regatta Race Coach
(14 hours – 2 days or 4 3.5 hour sessions)

High Performance Coach (32 hours)

Olympic Coach (Carded Coach Scheme)

Officials training

Race Management Seminar (16 hours)

Judge Seminars (16 hours)

Umpire Seminars (16 hours)



APPENDIX 9

Glossary

CBES	Coastguard Boating Education Service
CPC	Compliance Plate Certified
EPIRB	Emergency Position Indicating Radio Beacon (floating, for marine use)
IMO	International Maritime Organisation
Launch warden	volunteer advisor/enforcement officer for MNZ under previous legislation
m	metres (or) million
MIA	Marine Industry Association (formerly Boating Industry Association)
MNZ	Maritime New Zealand (formerly Maritime Safety Authority)
MTA	Maritime Transport Act 1994
NPBSF	National Pleasure Boat Safety Forum
PBSAG	Pleasure Boat Safety Advisory Group
PFD	personal flotation device; buoyancy aid designed to be worn (commonly called a “lifejacket”)
PLB	personal locator beacon used by aircraft and trampers, non-floating
Pleasure boats/craft/vessel and recreational boats/craft/vessels	Synonymous terms used in this publication
PWC	personal water craft (commonly known by the brand name “Jetski”)
Registration	Any system of database that captures the name (or other identity markings) of individual craft, and records the name and address of the owner
RYA	Royal Yachting Association (UK)
SAR	Search and Rescue
SBA	Safe boating advisor (MNZ volunteer)
Skipper	Master (refer MTA) or person in charge of the vessel. Legally responsible for the safety of the vessel and for compliance with all regulations
SOLAS	Safety of Life at Sea (international convention)
SSB and MF/HF radio	Single sideband and medium/high frequency radio (long-distance communication)
VHF radio	Very high frequency radio transmitter/receiver (short-distance communication up to 40 miles)
WSNZ	Water Safety New Zealand
YNZ	Yachting New Zealand (formerly NZ Yachting Federation)

the 1990s, the number of people in the UK who are aged 65 and over has increased from 10.5 million to 13.5 million (19.5% of the population).

There is a growing awareness of the need to address the needs of older people, and the Government has set out a strategy for the 21st century in the White Paper on *Ageing Better: A Strategy for the 21st Century* (Department of Health, 1999). This strategy is based on the following principles:

- (i) older people should be able to live independently in their own homes;
- (ii) older people should be able to live in their own communities;
- (iii) older people should be able to live in good health;
- (iv) older people should be able to live in good financial circumstances;
- (v) older people should be able to live in good social circumstances.

The White Paper also sets out a number of key objectives for the 21st century:

- (i) to reduce the number of people aged 65 and over who are dependent on state benefits;
- (ii) to reduce the number of people aged 65 and over who are dependent on residential care;
- (iii) to reduce the number of people aged 65 and over who are dependent on health services.

The White Paper also sets out a number of key actions for the 21st century:

- (i) to improve the health of older people;
- (ii) to improve the financial circumstances of older people;
- (iii) to improve the social circumstances of older people;
- (iv) to improve the housing of older people;
- (v) to improve the care of older people.

The White Paper also sets out a number of key actions for the 21st century:

- (i) to improve the health of older people;
- (ii) to improve the financial circumstances of older people;
- (iii) to improve the social circumstances of older people;
- (iv) to improve the housing of older people;
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- (v) to improve the care of older people.

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