2014 REVIEW OF THE NEW ZEALAND PLEASURE BOAT SAFETY STRATEGY

PREPARED FOR

MARITIME NEW ZEALAND AND THE NATIONAL PLEASURE BOAT SAFETY FORUM (NPBSF)

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CONTENTS

CONTENTS ................................................................................................................................. 2
EXECUTIVE SUMMARY ............................................................................................................... 5
CHAPTER ONE: INTRODUCTION ............................................................................................. 14
CHAPTER TWO: RECREATIONAL BOATING SAFETY IN NEW ZEALAND .................................. 15
    The New Zealand Pleasure Boat Safety Strategy .................................................................. 17
    Chapter Two Summary of Findings ....................................................................................... 23
CHAPTER THREE: STRATEGY IMPLEMENTATION ................................................................. 24
    Jurisdictional Coordination and Planning .............................................................................. 24
    Regulation ............................................................................................................................... 26
    Vessel Manufacturing And Maintenance .............................................................................. 28
    Navigational Safety ............................................................................................................... 29
    Enforcement .......................................................................................................................... 30
    Safety Awareness Campaigns ............................................................................................... 32
    Education and Training Courses .......................................................................................... 33
    Public Information ................................................................................................................ 35
    Boatie Assistance ................................................................................................................... 38
    Community Engagement ...................................................................................................... 39
    Search And Rescue ............................................................................................................... 40
    Accident Investigation and Analysis ..................................................................................... 40
    Research ................................................................................................................................. 42
    Chapter Three Summary of Findings ..................................................................................... 43
CHAPTER FOUR: CHANGES SINCE 2007 IN, OR AFFECTING, RECREATIONAL BOATING .......... 44
    Demographics of Boaties ....................................................................................................... 44
    The New Zealand Economy and the Global Financial Crisis ................................................ 45
    New Zealand Boating Industry ............................................................................................... 46
    Climate .................................................................................................................................... 46
    Population Growth and Demographic Changes ................................................................... 47
    National Profile of Safety Issues ............................................................................................ 47
    New Zealand Participation Rates .......................................................................................... 48
    Number of Vessels .................................................................................................................. 49
    Type of Vessels ....................................................................................................................... 49
    Chapter Four Summary of Findings ....................................................................................... 50
CHAPTER FIVE: INTERNATIONAL DEVELOPMENTS ........................................51
  Jurisdictional Coordination and Planning ........................................51
  Regulation .........................................................................................52
  Vessel Manufacturing And Maintenance ...........................................52
  Navigational Safety ...........................................................................53
  Enforcement .......................................................................................53
  Safety Awareness Campaigns ..........................................................54
  Education and Training Courses ......................................................55
  Public Information ............................................................................56
  Boatie Assistance ...............................................................................57
  Community Engagement .................................................................57
  Search And Rescue ...........................................................................58
  Accident Investigation and Analysis ................................................58
  Research ...........................................................................................60
Chapter Five Summary of Findings .......................................................61

CHAPTER SIX: RECREATIONAL FATALITIES IN NEW ZEALAND SINCE 2007 ..................62
  2007 – 2013 .......................................................................................62
  2011/12 and 2012/13 Fatality Review Panel Exercise .............................69
Chapter Six Summary of Findings .........................................................73

CHAPTER SEVEN: OVERALL EFFECTIVENESS OF THE EXISTING NEW ZEALAND PLEASURE
BOAT SAFETY STRATEGY .................................................................74
  Change in the Overall Rate of Recreational Boating Fatalities ................74
  Current Fatality Levels May be Higher than Some Other Similar Jurisdictions 75
  Whether Overall Fatality Reduction Targets were Met ..........................83
  Any Reductions in Fatalities Amongst Explicit or Implicit Strategy Target Groups 85
Chapter Seven Summary of Findings ......................................................92

CHAPTER EIGHT: DISCUSSION AND RECOMMENDATIONS ........................................93
  Jurisdictional Coordination, Planning and the Operation of the Forum 93
  Regulation .........................................................................................95
  Navigational Safety .........................................................................97
  Enforcement ......................................................................................97
  Safety Awareness Campaigns ..........................................................97
  Education and Training Courses ......................................................99
  Public Information ...........................................................................101
  Boatie Assistance .............................................................................103
  Community Engagement .................................................................103
  Vessel Manufacturing And Maintenance ..........................................104
  Search And Rescue .........................................................................105
  Accident Investigation and Analysis ................................................105
  Research ..........................................................................................107
CONCLUSION ................................................................................................................................. 109
REFERENCES ............................................................................................................................... 110
APPENDICES ................................................................................................................................. 113
  Appendix 1: National Recreational Boating Safety Forum Membership Organisations ........... 114
  Appendix 2: Review Methodology .............................................................................................. 115
  Appendix 3: Abbreviated Review of Overseas Research Literature ........................................... 117
  Appendix 4: Range of Pleasure Boat Safety Interventions in Place Overseas ............................. 132
  Appendix 5: Other Forms of Transport Compared ..................................................................... 144
  Appendix 6: Other Forms of Recreation Compared .................................................................... 149
  Appendix 7: Boating Education/Training Providers and Courses ............................................. 152
  Appendix 8: The Swiss Cheese Model and Recreational Boating ............................................. 155
  Appendix 9: Fatality Review Panel Contextual information ....................................................... 159
  Appendix 10: Glossary .................................................................................................................. 163
EXECUTIVE SUMMARY

Introduction
This report is a review of the National Pleasure Boat Safety Forum’s New Zealand Pleasure Boat Safety Strategy. The Forum was established in 2000 in response to a 1999 report recommendation by the then Pleasure Boat Safety Advisory Group which had been convened to investigate recreational boating safety in New Zealand. The establishment of the Forum was one of 13 principal recommendations arising from the 1999 report.

The Forum brings together 20 government, industry and not-for-profit organisations and coordinates national boating safety through a variety of means including education and training initiatives, safety awareness programmes, and the encouragement of inter-organisational cooperation, communication and coordination. In doing so, the Forum seeks to ensure: clear consistent safety messages, cost effectiveness, and the avoidance of duplication of effort. This can also include advocacy activities, such as published statements of the Forum’s position on certain safety measures, for example – the wearing of lifejackets. The Forum is convened and chaired by Maritime New Zealand (MNZ) - the national regulatory, compliance and response agency for the safety, security and environmental protection of New Zealand’s coastal and inland waterways; recreational boating safety is one of MNZ’s core functions. The Forum’s strategy was last reviewed in 2007.

Recreational Boating Safety in New Zealand
In New Zealand, recreational boating remains a very popular pastime and is enjoyed by many. New Zealand’s National Recreational Boating Safety Strategy comprises of a mix of elements including jurisdictional coordination and planning, regulation, navigational safety enforcement, awareness raising, public information, community engagement, education and training, boatie assistance, vessel manufacturing and maintenance, search and rescue, accident investigation and analysis, and research. The 2007 review and strategy, which supplements rather than supersedes the original 1999 report, particularly recommended a stronger future focus on awareness raising, regulations, education and training.
The Forum’s Strategy is both *deliberate* and *emergent*. The ‘deliberate’ dimension is the implementation of the recommendations of the 2007 review and the original 1999 document that led to the establishment of the Forum; the ‘emergent’ reflects other Forum member discussions and decisions at, and in-between, the 6-monthly Forum meetings. With the Forum’s establishment in 2000, New Zealand took a much more collaborative approach to recreational boating safety than most comparable countries. New Zealand is also one of the few identified western countries (or states or provinces) with a sector-wide recreational boating safety strategy. The Forum fulfils a number of different functions and, as well as directly or indirectly putting in place a range of initiatives, it has also, for example, provided government with expert advice on recreational boating safety issues on a number of occasions. While it is not always clear where the Forum ends and Maritime New Zealand (MNZ) begins and vice versa, this interagency sector body serves an important purpose, and the recent establishment of the communications and data sub groups, have also been important developments.

**Strategy Implementation**

The Forum and MNZ have implemented a wide range of initiatives, both planned and emergent, since 2007. There has been strong progress on awareness-raising through the use of advertising (TV, online, print and radio) and public information. The Strategy now also has a firmer funding base. However, for a variety of reasons, several other 2007 recommendations have not been implemented or otherwise successfully progressed, and some of the 1999 recommendations remain outstanding. While individual Forum members have continued to contribute to recreational boating safety in a variety of different ways, the Forum’s recreational boating strategy in practice has become primarily focused on awareness-raising campaigns and public information, with progress on the introduction of new regulations, and strengthening education and training, being more limited.

**Domestic Changes in, or Affecting, Recreational Boating Safety since 2007**

The profile of the *typical kiwi boatie* appears to be changing. For example, one recent research study found that those who owned or had access to a recreational vessel were, on average, younger than the general population, and more likely to be on a low or moderate income, than is understood to have been the case in the past. A significant minority of such individuals are now female, with the single most common type of vessel that they owned, or having access to, being kayaks/canoes.
There have been a number of other changes since 2007 including:

- New Zealand going into recession in 2008 and the effects of the global financial crisis.
- A significant decrease in sales of most classes of new vessels over the period 2008-2011.
- The population of New Zealand growing by almost a quarter of a million people.
- The number of people taking part in recreational boating, in all likelihood, going up, and
- A stronger national profile of safety issues, such as those arising from the Christchurch Earthquake, the Pike River Coal Mine disaster, and a number of Adventure Tourism fatalities.

International Developments
Internationally, recreational boating continues to grow in popularity. In English-speaking countries, and presumably some others, there has been a significant increase in the number of participants using various forms of un-powered paddle craft, including kayaks/canoes.

Since the original 1999 report, there has been a continued shift amongst western countries towards more regulation of recreational boating. This pattern has been particularly marked in both Australia and the countries of the European Union. In comparison to Europe, North America and Australia, New Zealand’s recreational boating remains lightly regulated. North America, and the United States (US) in particular, maintains a strong focus on enforcement. Vessel manufacturing standards are also an important component of national recreational boating safety systems in North America and the European Union.

Recreational Boating Fatalities since 2007
Since 2007, there have been 115 recreational boating fatalities in New Zealand, as defined by MNZ. Of the 84 fatalities on the MNZ database that were categorised by event location, 38 were in lakes and rivers, rather than sea-related. In almost half of all cases (53), vessels were recorded as having capsized, with 22 as person overboard, and 11 as sinking. The largest number of fatalities (30) per single age group, was in those aged 45-54; the next highest age bands, with 17 fatalities each, were those aged 15-24 and 55-64. However, all age-bands had five or more fatalities over this seven year period, including six children under the age of 14.
In terms of the geographical distribution across the country, the most notable feature was that Otago and Southland combined had more fatalities since 2007 than Auckland.

The more detailed analysis of the 32 fatalities that occurred over the fiscal years 2011/12 and 2012/13, be it with a caveat on the small numbers involved, found that the fatality rate was largest, not in 45-54 year olds, but those aged 15-24. From this analysis, Pacific People’s and Māori were over-represented, and fatalities occurred over the course of the whole year and not just during the summer months. However, it remains to be seen whether these two years represent a longer term shift in New Zealand’s recreational boating fatality patterns. In terms of the factors that may have prevented 2011/12 and 2012/13 fatalities, a Fatality Review Panel was convened as part of the process to review 28 of these 32 cases. While carrying and wearing a Personal Floatation Device (PFD) appeared as expected with the highest frequency, the skipper having on-water behavioural competence, and the vessel being seaworthy, ranked two and three respectively. Of the top 18 factors identified, all but one related solely to decisions taken (or not) before the commencement of trips. The majority of those that died over this two-year period had little recreational boating experience and demonstrated a low level of safety behaviour.

**Overall Effectiveness of Strategy**

The 2007 review highlighted that, since the establishment of the Forum in 2000, there had been a significant reduction in recreational boating fatalities. However, since 2007, a more mixed picture emerges. On the one hand, there have been fewer recreational boating fatalities since 2007 than there were over the preceding seven years. While the reduction is not large (115 deaths as opposed to 124), this figure does need to be seen in the context of an increased population and the likelihood of an increased number of participants in recreational boating. Also, since 2007, those aged 35-44 and 45-54 have at times been targeted by the Forum and MNZ, and there has been a notable reduction in fatalities amongst one of these groups (those aged 35-44). Furthermore, research evidence would suggest that there have been some positive changes in New Zealand’s recreational boating safety culture since 2007. However, on the other hand, the New Zealand fatality rate per capita still appears to be up to twice as high as those found in both Australia and the US, and it is difficult to determine whether MNZ’s own recreational boating fatality targets have, to date, been met.
**Recommendations**

This report contains 19 recommendations. However, while acknowledging that the Forum’s strategy since 2007 has met with some success, the review’s principal recommendation is that, in order to achieve a meaningful reduction in the number of recreational boating fatalities and serious injuries in New Zealand, a change in the current mix of interventions undertaken by the Forum, MNZ and other Forum member organisations, is required. The current strategy is largely reliant on awareness raising and public information. Both of these dimensions are important and should remain as central elements of the Forum’s Strategy. However, on the basis of the experience of implementing the strategy to date, changes in recreational boating since 2007, developments in other western countries and the research literature, there needs to be more focus and progress on a number of other fronts, including regulation and enforcement. Specific recommendations are presented in two parts. The first set of recommendations is on jurisdictional coordination and planning and the operation of the Forum, whereas the second set of recommendations is on the proposed content of the forthcoming Forum strategy document, along with necessary supporting work.

**Recommendations on jurisdictional coordination and planning issues, and the operation of the Forum**

It is recommended that:

1. MNZ and the Forum re-calibrate their approaches to recreational boating safety and more fully consider the safety of, for example, those who use lakes and rivers, kayakers and other paddle craft users, women, children and young people, the poor, and the inexperienced. In doing so, MNZ and the Forum reaffirm that boaties are not one homogeneous group but are instead made up of a number of subgroups with their own risk profiles and issues. As well as MNZ and Forum programmes and activities, this may also have some implications for Forum membership.
2. MNZ and the Forum give consideration to how they are going to plan and coordinate recreational boating safety activities over the next five years. In particular, consideration should be given to largely devoting the afternoons of the biannual meeting to the two existing subgroups – along with some new time-limited working on, for example, training and enforcement. Consideration should also be given to the establishment of a vice chairperson role, from outside of MNZ, and building on the current national secretary role, or a viable alternative, to provide more coordination of, and support to, Forum members and ongoing activities.

3. MNZ and the Forum reflect on whether the Forum should strengthen its advocacy role and, if so, explore the implications for MNZ and other government agency members.

4. the current Forum Terms of Reference (ToR), written in 2000, be updated to include an explicit statement that the primary purpose of the Forum is for member agencies to work collaboratively, both nationally and regionally, to reduce New Zealand’s pleasure boat fatalities and injuries.

5. in going to the next level, the Forum’s 2014-2019 Strategy needs to build on agreed policy positions and clearly articulate how the Forum and its member organisations are going to contribute individually and collaboratively to strengthening New Zealand’s recreational boating culture, and reducing fatalities and serious injuries, and provide the rationale for targeting particular population groups. In doing so, the Forum should utilise all of the ‘levers’ at its disposal, and, in relation to each of these, determine whether to: lead, model, inspire, engage, teach, inform, assist, encourage, persuade, incentivise, subsidise, facilitate or compel. The new Strategy should also be a stand-alone document and explicitly include or exclude existing positions and commitments from the 2007 and 1999 reports, and Forum ToR.

Recommendations for inclusion in, or to support, the Forum’s 2014 Strategy Document

Regulation
It is recommended that:

1. the Forum includes in the 2014 strategy its current (or revised) positions on: the mandatory wearing of PFDs on vessels under 6m (unless the skipper deems that it is not necessary), the mandatory wearing of PFDs for children, and alcohol and drugs.
2. MNZ undertake further policy work on the wearing of PFDs in vessels under 6 metres, as well as further policy work on the risk profile of children and young people and any particular safety needs that they may have. In relation to both PFDs and children, consideration should be given as to whether the future regulatory framework for recreational boating in New Zealand is to be primarily a national one in relation to Acts of Parliament, or a regional one in terms of the further development of bylaws.

3. MNZ undertake policy work on the possible introduction of a mandatory recreational boating skipper licensing/education/proof of competency scheme, along with any viable alternatives.

**Enforcement**
It is recommended that:

1. MNZ and regional and unitary authorities review their current respective approaches to recreational boating enforcement and seek to jointly identify, examine and address any apparent gaps in the enforcement or regulation.

**Safety awareness campaigns**
It is recommended that:

1. the current approach to awareness raising campaigns (ideas shop, 2013), while endorsed, nonetheless takes into account the changes in recreational boating over recent years. In doing so, MNZ should distinguish more clearly between population targets for particular awareness raising campaigns, and any population targets for the strategy as a whole.

**Education and training**
It is recommended that:

1. MNZ and the Forum coordinate the development of a national recreational boating ‘safety training needs analysis’ exercise. As part of the identification and assessment of training needs, MNZ and the Forum should develop a means of collecting and analysing education and training information from (a) current and future course participants of CBES and other Forum education and training providers (b) participants in the surveys of MNZ and other Forum members and (c), future MNZ recreational boating fatality and serious injury investigation reports and analyses. The needs analysis should also include an audit of current education and training provision.
Public information
It is recommended that:

1. the development of a national recreational boating safety website, as already proposed (ideas shop, 2013) and agreed by the Forum, be designed as New Zealand’s primary recreational boating safety website, in much the same way as SmartBoatie.ca is in Canada. While MNZ could coordinate the development, the website should be seen to be under the auspices of the Forum, rather than MNZ, or indeed Water Safety New Zealand (WSNZ), the New Zealand Search and Rescue (NZSAR) Council or Coastguard Boating Education Services (CBES).

2. Forum members should harmonise their core key safety messages so that they are not inconsistent.

Community engagement
It is recommended that:

1. the Forum explore, with the Navigation Safety Special Interest Group, their interest in, and the feasibility of, the establishment of an annual New Zealand Recreational Boating Safety Awareness Week. If there is support for such a proposal, the Forum should establish a subgroup which includes appropriate representation from local authority representatives and other key agencies, to coordinate an annual New Zealand Recreational Boating Safety Awareness Week and support regional planning groups. Commencing in 2014, it is proposed that the week should coincide each year with Labour Day weekend. Over time, Forum members would be expected to align most of their individual and collective awareness raising activities with each other through such a New Zealand Recreational Boating Safety Awareness Week.

Vessel manufacturing and maintenance
It is recommended that:

1. MNZ work with relevant Forum members to assess the extent to which the CPC programme meets the 2007 recommendations on “developing and implementing voluntary industry standards for vessels under 6m, with further research and development into retrofitting level flotation in existing pleasure boats” (NPBSF, 2008, p.11). Consideration should be given to whether, and if so what, further work needs to be undertaken in relation to both domestically built and imported boats, and the retrofitting of older vessels should be considered alongside any other proposals to improve the seaworthiness of older vessels.
**Accident investigation, analysis and reporting**

It is recommended that:

1. MNZ and WSNZ build on the early work of the Forum’s data subgroup, and explore how they can use, and possibly better share, their limited resources to collaborate more on data collection, analysis and reporting on recreational boating fatalities and serious injuries. This should include giving consideration to sharing media clipping information, information from coroner’s reports, and Ministry of Health fatality and serious injury data. There may also be scope for harmonising some reporting categories, periodically reconciling data, and the joint publication of an annual report on finalised recreational boating statistical data on fatalities, injuries and incidents. In doing so, there may be opportunities to get leverage from the Forum’s very positive, if limited, public profile.

2. MNZ and WSNZ follow the Canadian model and jointly develop a survey instrument for the collection of recreational boating data. As well as assisting with the better collection, analysis and reporting of information, it is expected that this would, in time, also contribute towards a stronger focus on critical accident characteristics and risk factors in MNZ and police investigations, reports, coronial evidence, public information and media stories.

**Research**

It is recommended that:

1. MNZ, as part of its strategic planning process, and aligned with research undertaken by other Forum members, develop a long-term integrated research strategy to support recreational boating safety.

2. Cost-effectiveness over the next five years be a central tenet of such a research strategy. As well as sustaining relationships with current research providers, consideration should also be given to (re-)building relationships with appropriate academic research centres, as well as evaluation research specialists. It may be that fewer studies are actually commissioned in the future, but, with an increased investment in design and method, these findings might be better utilised.
CHAPTER ONE: INTRODUCTION

This report is a review of the National Pleasure Boat Safety Forum’s (hereafter referred to as the Forum) New Zealand Pleasure Boat Safety Strategy. The Forum was established in 2000 in response to a report recommendation by the then Pleasure Boat Safety Advisory Group (PBSAG) which had been convened to investigate recreational boating safety in New Zealand. The establishment of the Forum was one of 13 principal recommendations that came out of the PBSAG report. The Forum, meeting biannually, brings together 20 government, industry and not for profit organisations with an interest in recreational boating and/or injury prevention. The Forum seeks to coordinate national boating safety initiatives through education and training, safety awareness programmes, and the encouragement of cooperation, communication and coordination between all organisations participating in boating safety to ensure clear consistent safety messages, cost effectiveness, and to avoid duplication of effort. This can include advocacy activities such as published statements of the Forum’s position on certain safety measures, for example – the wearing of lifejackets. The Forum is convened and chaired by Maritime New Zealand (MNZ) - the national regulatory, compliance and response agency for the safety, security and environmental protection of New Zealand’s coastal and inland waterways; recreational boating is one of MNZ’s core functions. The Forum’s strategy was last reviewed in 2007.

This review has been prepared for MNZ and the Forum. While information and advice has been provided by members of a Forum review steering group and MNZ staff, it has been prepared independently. The report has eight chapters. Following this introduction, the second chapter describes pleasure boat safety in New Zealand and the New Zealand Pleasure Boat Safety Strategy. Chapter three discusses the implementation of the strategy, while chapters four and five explore domestic and international changes respectively, since 2007. Chapter six examines fatalities since 2007, and chapter seven assesses the overall effectiveness of the Strategy since 2007. The main body of the report concludes with chapter eight which provides a discussion and recommendations. The report’s primary audience is both the National Pleasure Boat Safety Forum and Maritime New Zealand.
CHAPTER TWO: RECREATIONAL BOATING SAFETY IN NEW ZEALAND

Whether at sea, in lakes or on rivers, or using launches, motorboats, dinghies, yachts, canoes, kayaks, or Personal Watercraft (PWC), in common with Australia, Canada, the US and Scandinavia, recreational boating in New Zealand is a very popular pastime and enjoyed by many people.

In terms of the existence of compulsory safety measures, despite some incremental legislative changes since 1999 in relation to lifejackets, in comparison with Australia, Canada, the US, most of Europe and Scandinavia, New Zealand boaties at a national level are lightly regulated. For example: in the US all powered boat users (and in some states un-powered boats, including kayaks and canoes) have had to have their vessels registered since 1961; in Canada all those with powered vessels have to carry a ‘proof of competency’; and in some Australian states the wearing of a personal flotation device is mandatory. However, at a local level, several New Zealand regional and unitary local authorities have introduced bylaws that in most instances require all of those on vessels under 6 metres and underway, to wear lifejackets. Recreational boating in New Zealand is also subject, again at a national level, to relatively little regulation in comparison to some similar forms of transport or activity (see appendices 5 and 6).

In a report to the UK Maritime & Coastguard Agency (Marico Marine Group, 2007) three generic regulatory approaches to recreational boating safety were presented as follows:

- Central Direction and Implementation,
- Central Direction, Local Implementation, and
- Independent Direction, Local Implementation with Central Coordination.

The authors gave the USA and the European Union as examples of the Central Direction and Implementation approach and Germany, Italy, Malta, Netherlands and Spain as examples of the Central Direction, Local Implementation approach. They considered New Zealand, along with, to a lesser extent, the Republic of Ireland and Sweden, as an example of the Independent Direction, Local Implementation with Central Coordination.
However, as important as regulation is, it is only one of several potential interventions and initiatives that countries, states, jurisdictions and local authorities have at their disposal to reduce recreational boating fatalities and serious injuries. While there are limitations on the extent to which roles and functions of organisations can be reduced down to a single table, the following is offered as a summary of the involvement of Forum members and other organisations in recreational boating safety in New Zealand.

**Table 1: Recreational Boating Safety Roles and Responsibilities in New Zealand**

<table>
<thead>
<tr>
<th>Role</th>
<th>MNZ</th>
<th>WSNZ</th>
<th>COUN</th>
<th>CBES/ NZC</th>
<th>POLICE</th>
<th>SARC</th>
<th>OTHER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regulation</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>Min. of Transport</td>
</tr>
<tr>
<td>Enforcement</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>✓</td>
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<td></td>
<td></td>
<td></td>
<td>NZM</td>
</tr>
<tr>
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<td></td>
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<td></td>
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<td>Public Information</td>
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<td>✓</td>
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<td>Training Courses</td>
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<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td>YNZ/ Various</td>
</tr>
<tr>
<td>Boatie Assistance</td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sector/Cmty Engagement</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Search &amp; Rescue</td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Various</td>
</tr>
<tr>
<td>Fatal/Injury Invest./Data</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td>Coroners ACC</td>
</tr>
<tr>
<td>Research</td>
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<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td>ACC</td>
</tr>
</tbody>
</table>

**KEY**
- MNZ: Maritime New Zealand
- WSNZ: Water Safety New Zealand
- COUN: Regional or Unitary Councils
- CBES: Coastguard Boating Education Service
- POLICE: New Zealand Police
- SARC: Search & Rescue Council
- OTHER: Various
- Min. of Transport
- NZM: New Zealand Marine
- YNZ: Yachting NZ
- ACC: ACC
- Various
- Coroners ACC
It is worth noting that MNZ is identified in 11 of the above 12 categories of interventions and initiatives. MNZ has a particularly distinctive organisational role as it is the regulator for the recreational boating sector; the agency seeks to encourage and support recreational boating skipper compliance by promoting safety, providing safety information and advice, and fostering other appropriate programmes. However, some other Forum members also work across multiple categories of interventions and initiatives, including regional and unitary authorities, Water Safety New Zealand, Coastguard Boating Education and the New Zealand Police. Others, by virtue of their organisational roles, concentrate on one or two areas of particular relevance to them.

**The New Zealand Pleasure Boat Safety Strategy**

Early on in this report, and so as to be clear on what the subject of this review is, it is useful to discuss what precisely the New Zealand Pleasure Boat Safety Strategy is. In essence, the New Zealand Pleasure Boat Safety Strategy can be seen as both *deliberate* and *emergent*. Or in other words, the Forum’s strategy has involved detailed analysis and deliberately selecting a particular set of high-level activities or approaches that, if followed, would enable long term goals to be met in a relatively predictable way, and trying to meet those same or similar longer term goals through adapting and changing high-level activities or approaches in response to relatively unanticipated changes in the recreational boating safety environment and beyond. The Forum is convened and chaired by MNZ. It currently has 20 member organisations (see Appendix 1). The Forum meets twice a year. In more detail, the Forum’s Strategy is seen as comprising of the following:
**2007 report**

The Forum’s Strategy is in part the contents of the document *Boating Safety Strategy: 2007 Review of the New Zealand Pleasure Boat Safety Strategy* and putting into effect the commitments therein. The document contained nine recommendations, supported by the Forum, on:

- Education and training
- Mandatory alcohol limits for skippers
- Mandatory carriage of communications equipment
- Fitted buoyancy to provide level floatation
- Default wearing of lifejackets in craft under 6m unless skipper decides that it is not necessary because the risk is low
- Promotions of boating safety awareness
- Petrol tax funding for safety programmes
- Enforcement
- Volunteer programmes
- Accident analysis

The 2007 review and strategy report also outlined six other possible options that were considered but were not supported by the Forum at that time. These related to:

- registration of powered recreational vessels,
- mandatory licenses for skippers,
- mandatory construction standards for vessels,
- registration of pleasure boats, with an annual safety charge,
- sales tax on boats and boat equipment, and
- seabed licenses.
1999 Report

The Forum’s Strategy is also in part the contents of the document *Pleasure Boat Safety Advisory Group: Final Report* (PBSAG, 1999), and putting into effect any yet-to-be implemented commitments therein. The 2007 report supplemented rather than superseded the original 1999 report. The 1999 document contained 13 principal recommendations, all supported by the Forum, on:

- Safety equipment
- Education and public awareness
- Resourcing
- National coordination
- Vessel stability and floatation
- Practical vessel usage guidelines
- Vessel care and maintenance guidelines
- Launch wardens
- Alcohol guidelines
- Data collection
- Separation of activities
- Vessel identification (boats) and registration (boats and PWCs) measures not to be developed further without more evidence to justify implementation
- Social implications (including Māori and gender issues)

While some of the original recommendations were re-stated in the 2007 report, others were unstated but appear to have remained as part of the Strategy.
Forum’s ToR
The Forum’s Strategy is in part the National Pleasure Boat Safety Forum’s prescribed roles, functions and activities carried out, as outlined in the ToR (NPBSF, 2000). These are summarised as follows:

- Co-ordinate national boating safety initiatives through national boating education and safety awareness programmes.
- Encourage communication, sharing of information and cooperation between all organisations participating in boating safety to ensure cost effectiveness and avoid duplication of effort.
- Develop national guidelines for best practice in safe boat usage, boat maintenance and boat design, with particular emphasis on buoyancy and stability.
- Evaluate existing and future national boating safety programmes against agreed targets, including accidents/incidents, numbers participating in boat safety education programmes and public perception.
- Promote national initiatives for boating safety programmes.
- Collect, monitor and analyse accident data and other information in New Zealand and from overseas to identify trends and issues affecting boating safety.
- Liaise with Māori and other ethnic communities to promote boating safety awareness.
- Develop boating safety forums in areas of major boating activity.
- Recommend additional programmes or legislation.

A full copy of the Forum’s ToR is attached as Appendix 2. As well as specifying a number of activities that the Forum agreed to undertake over the following months and years, the ToR also provide a broader framework that guides and supports Forum members in communicating, cooperating, coordinating and collaborating together on recreational boating safety. These Terms do not appear to have been revised since they were originally agreed on in 2000.

Importantly, these ToR appear to, implicitly if not explicitly, support the Forum to engage in emergent strategising, as well as more deliberate forms of strategising that are found in the recommendations of the 2007 and 1999 reports.
Government advisory function
The Forum’s Strategy is in part a means by which the government seeks and receives advice from the recreational boating (safety) sector. Governments in some countries have a specific group to provide them with independent advice on recreational boating safety matters; the role of such groups is usually purely an advisory one. For example, Transport Canada has their National Recreational Boating Advisory Council, and this group plays a distinctly different and narrower role than the Canadian Safe Boating Council, which is the interagency and sector-wide body that nationally leads recreational boating safety. A similar distinction can be found in the US, and also, many of those western jurisdictions that do not have the equivalent of the NZPSF will have some type of governmental advisory group.

In the absence of such a distinction in New Zealand, it is noteworthy that many of the Forum’s recommendations in both the 2007 and 1999 reports were recommendations to Government Ministers. Furthermore, whether formally or informally, the Forum’s advice is also periodically sought by the government and/or given by the Forum as a body.

Guiding document for MNZ and other Forum members
The Strategy can also be seen as the means by which MNZ both articulates and discharges many of its responsibilities in relation to recreational boating safety. In undertaking this review, the interface between Forum and MNZ activities was not always entirely clear. This is not unusual when one member of an interagency group is comparatively large and/or has significant statutory powers and duties that are central to the work of the group, although this can raise ownership, monitoring and accountability challenges. However, while the 2007 review report was prepared for the Forum, it is also important to see the 1999 and 2007 reports in particular, as representing a way forward for MNZ in its own right, as well as the Forum members collectively. Related to this, the Forum is also a means for MNZ and indeed other Forum members, to formally, or more informally, consult with the recreational boating sector through the Forum member organisations, and for Forum members in turn to consult with MNZ and raise issues.
A Particular set of guiding values and principles
While the Forum, since its establishment in 2000, has incrementally strengthened its focus on mandatory legislative measures, for example in relation to PFDs and alcohol, today it largely espouses the same values and principles as those that were articulated by the Pleasure Boat Safety Advisory Group in their 1999 report. These are summarised as follows:
- Recreational boating is a valuable activity that should be encouraged rather than discouraged.
- The majority of fatalities arise from inadequate boating knowledge rather than deliberately reckless behaviour.
- Better targeting of education, both in terms of raising public awareness and boating training, is generally preferred over regulation.
- Initiatives to improve safety need to be at reasonable cost.
- Whilst acknowledging the statutory responsibility that MNZ and local authorities have in relation to promoting safety issues and enforcement, skipper personal responsibility should also be encouraged and not undermined.

A particular set of strategic themes and key safety messages
The original analysis of recreational boating fatalities in New Zealand, undertaken by the Pleasure Boat Safety Advisory Group for the 1999 report, identified four particular safety risks in relation to:
- wearing lifejackets,
- carrying communications equipment,
- checking the weather, and
- not consuming alcohol.

These safety risks informed not only the 1999 and 2007 reports, but also how the Strategy has since been implemented and how new recreational boating issues are approached. As well as being strong guiding strategic themes, these risks have also been translated at various times into key safety messages which have been used in social marketing, public information and training courses. Wearing a lifejacket, carrying communications equipment, checking the weather and not consuming alcohol, both as guiding strategic themes and key safety messages, remains central to the work of the Forum. A fifth overarching theme, in relation to skipper responsibilities, has over recent years also sometimes appeared as a key safety message.
Chapter Two Summary of Findings

- The New Zealand Pleasure Boat Safety Strategy can be seen as both deliberate and emergent. The ‘deliberate’ aspect is the implementation of the recommendations of the 2007 and 1999 documents, while the ‘emergent’ reflects other Forum member discussions and decisions at, and in-between, the 6 monthly meetings.
- With the establishment of the Forum in 2000, New Zealand took a much more collaborative approach to recreational boating safety than most comparable countries. It is also one of the few countries or other jurisdictions with a sector-wide recreational boating safety strategy.
- The Forum fulfils a number of different functions and as well as putting in place a range of initiatives, it has also provided the government with expert advice on a number of occasions.
- While it is not always clear where the Forum ends and MNZ begins and vice versa, this interagency sector body serves an important purpose, and the recent establishment of the communications and data sub groups have also been important recent developments.
CHAPTER THREE: STRATEGY IMPLEMENTATION

JURISDICTIONAL COORDINATION AND PLANNING

Progress on strategically planned activities

The 2007 Strategy document includes one recommendation in relation to the funding of Forum activities. The establishment of the Forum arose from a recommendation in the original 1999 report.

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>2007</th>
<th>1999</th>
<th>ToR</th>
</tr>
</thead>
<tbody>
<tr>
<td>[Petrol tax funding for safety programmes] That central government provide NPBSF with additional funding for pleasure boat safety from revenue collected as petrol tax from fuel used in pleasure boats.</td>
<td>☑</td>
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<tr>
<td>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.</td>
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<td>☑</td>
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<tr>
<td>Co-ordinate national boating safety initiatives through national boating education and safety awareness programmes.</td>
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<td></td>
</tr>
<tr>
<td>Encourage communication, sharing of information and cooperation between all organisations participating in boating safety to ensure cost effectiveness and avoid duplication of effort.</td>
<td></td>
<td>☑</td>
<td></td>
</tr>
<tr>
<td>Evaluate existing and future national boating safety programmes against agreed targets including accidents/incidents, numbers participating in boat safety education programmes and public perception.</td>
<td></td>
<td>☑</td>
<td></td>
</tr>
<tr>
<td>Develop boating safety forums in areas of major boating activity.</td>
<td></td>
<td>☑</td>
<td></td>
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</tbody>
</table>

The Forum was established in 2000. The ToR are attached as Appendix 2. The structure and function of the Forum, as well as the organisations represented on it, has remained largely the same since that time. In the early years, the Forum was highly reliant on sponsorship funding which was always time limited. However, following the Forum’s 2007 recommendation in relation to the use of petrol tax funding for safety programmes, MNZ was provided with an annual budget from revenue collected from petrol tax for this purpose, although only since 2010/11. While not a large budget in comparison to some Australian states where vessel registration and/or boat licensing are acknowledged primarily as funding streams, this has allowed MNZ, in collaboration with other Forum members, to better fund, and more effectively plan, recreational boating safety initiatives and media campaigns. All of the above recommendations have been implemented. However, it is understood that while some regional boating safety forums meetings did take place, they ceased to meet some time back.
**Emergent activities**

An important recent Forum development has been the establishment of their communications subgroup. As well as enabling Forum members with a particular responsibility for, or interest in, communications to share information on their activities, the subgroup already appears to be supporting greater levels of cooperation, coordination and collaboration. A data group with a similar role in relation to the collection, analysis and reporting of data, was also established in 2013. The Communications sub-group is led by MNZ and the data group by WSNZ.

In 2013, a company was engaged to develop a *Cross Agency Communications and Engagement Strategy* (ideas shop, 2013) to support the New Zealand Pleasure Boat Safety Strategy. The resulting strategy was endorsed by the Forum in October 2013. Overall, this is seen as a major development and probably the most important piece of work that has been undertaken under the auspices of the Forum. As well as awareness raising campaigns, the Communications and Stakeholder Engagement Strategy also canvasses some issues that in the current review report are contained in sections on public information, sector/community engagement, fatality/accident analysis and research. The nine interviews that were undertaken with Forum members as part of the above work, also provide some useful insights on how the Forum works in practice. Two key findings from these interviews were that there was a “strong sense of purpose among Forum members around outcomes and importance of the strategy” (ideas shop, 2013, p. 3) and that there was broad agreement on recreational boating risk factors. However, fragmentation, insufficient cohesion, and a lack of collective leverage, along with issues around data and measuring progress, also emerged as themes.

An important development since 2007 has been the inclusion within many regional and unitary authority navigational safety bylaws, of measures that move into areas that in other countries are largely dealt with (or not) at the national level; for example, carriage of safety equipment, alcohol, power boat operator minimum age, registration of PWC users and the wearing of PFDs.
**REGULATION**

**Progress on strategically planned activities**
The 2007 Strategy document included four recommendations on the need for new national legislation. While largely superseded, the 1999 recommendation is also reproduced below, as is a statement from the Forum’s ToR, that making recommendations on the development of additional legislative programmes is very much part of the Forum’s remit.

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>2007</th>
<th>1999</th>
<th>ToR</th>
</tr>
</thead>
<tbody>
<tr>
<td>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.</td>
<td>✔</td>
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<tr>
<td>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.</td>
<td>✔</td>
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<tr>
<td>Blood alcohol limits and testing: Setting a maximum blood alcohol concentration (BAC) 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.</td>
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<tr>
<td>Promote national initiatives for boating safety programmes including:</td>
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</tr>
<tr>
<td>- Skipper responsibility</td>
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<tr>
<td>- Carriage of safety equipment and its use</td>
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<tr>
<td>- Boat maintenance and care</td>
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<tr>
<td>- The impact on safety of the use of alcohol and drugs in boats</td>
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<tr>
<td>- Collision Prevention Rules and other legal requirements</td>
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<tr>
<td>Safety Equipment:</td>
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<tr>
<td>- The introduction of national legislation requiring the compulsory carriage of sufficient personal floatation devices (PFD) for all persons on board all recreational craft.</td>
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<td></td>
</tr>
<tr>
<td>- The wearing of PFDs in at least the following circumstances and/or by the following groups:</td>
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<tr>
<td>- when operating all types of small open recreational craft;</td>
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<tr>
<td>- in rough seas or adverse weather, crossing bars at river or harbour entrances, and on fast flowing rivers; and</td>
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<tr>
<td>- in any other situation which the skipper, in fulfilling his/her responsibilities as set out in section 19 of the Maritime Transport Act 19944, deems necessary.</td>
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<tr>
<td>Recommend additional programmes or legislation.</td>
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</tbody>
</table>
Default lifejacket wearing: MNZ undertook policy work on the mandatory wearing of PFDs on pleasure craft under 6m unless the skipper says that it is not necessary, and the Forum also wrote to the Minister for Transport in 2013 seeking his support on this matter. MNZ also developed a draft national rule and has consulted on this rule. Some Councils have incorporated a requirement for the mandatory wearing of PFDs on pleasure craft under 6m, into local bylaws. These include Greater Wellington, Hawkes Bay, Horizons, Northland, Waikato, Canterbury and Southland Regional Councils, and Nelson City Council. While some Councils largely adopted the MNZ draft national rule, there are some differences in precise wording and scope across different authorities.

Mandatory carriage of communications equipment: Some Councils have also incorporated this requirement into local bylaws. Examples include Waikato and Southland Regional Councils, which require that every skipper carry on board their vessel at least one means of communication that: a) has the ability to communicate with a land based person from any area where the vessel is intended to be operated; b) has sufficient coverage and power to operate for the actual duration of the voyage; and c) if the vessel is 6m or less in length, is either waterproof or is carried in a waterproof bag or container.

Blood alcohol limits and testing: No progress identified nationally although provision in relation to alcohol, be it without a BAC, has been included in the draft Auckland bylaw.

Emergent activities
As well as matters around the development of bylaws by certain regional and unitary councils, the issue of child fatalities has gained some attention following Peseta Sam Lotu-Liga, MP for Maungakiekie’s proposed Member’s Bill on the compulsory wearing of lifejackets for children under the age of 15 on vessels under 6m. The Forum supports the proposal.
**Vessel Manufacturing and Maintenance**

**Progress on strategically planned activities**

The 2007 Strategy document includes one recommendation in relation to vessel safety. There was also one recommendation from the 1999 report on vessel design which can also be deemed to be part of the Forum’s Strategy. A similar commitment is also included in the Forum’s ToR.

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>2007</th>
<th>1999</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Level flotation: developing and implementing voluntary industry standards for vessels under 6m, with further research and development into retrofitting level flotation in existing pleasure boats.</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Vessel stability and floatation – 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.</td>
<td></td>
<td>✓</td>
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</tr>
<tr>
<td>Develop national guidelines for boat maintenance and boat design with particular emphasis on buoyancy and stability.</td>
<td></td>
<td></td>
<td>✓</td>
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</tbody>
</table>

The 2007 review found that “while a significant number of fatalities in boats under 6m 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” (NPBSF, 2008, p. 10).

In relation to the recommendation on the development and implementation of voluntary industry level floatation standards, the Coastguard New Zealand-approved and audited New Zealand Audited Boat Building Standards Compliance Plate Certification (CPC) programme, which was first launched in 1999 and is administered by the NZ Marine Industry Association (NZM), includes a requirement for powerboats up to 6m to be unsinkable if swamped. While this was progressed by the Forum, it is reported that the CPC was seen as a more pragmatic means of progressing these particular recommendations and it is understood that most of New Zealand’s leading trailer boat builders have joined the programme in relation to one or more of their models. However, the CPC does not require level floatation and there appears to have been no progress on retrofitting level flotation in existing vessels.

**Emergent activities**

One other initiative since 2007 has been the development and implementation of AS/NZS 3004.2:2008 Electrical installations – Marinas and recreational boats – Recreational boats installations, in late 2008, which supersedes AS/NZS 3004:2002.
Navigational safety refers principally to the ‘rules of the road’ as they apply nationally under the jurisdiction of MNZ and regionally under the auspices of regional and unitary councils. Only one recommendation in relation to navigational safety from the original 1999 report has been identified. There is no reference to navigational safety in the Forum’s ToR.

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>2007</th>
<th>1999</th>
<th>ToR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Separation of activities: that regional boating safety management initiatives be brought to the attention of the formal network of recreational boating safety-focused organisations referred to in recommendation 13.4.</td>
<td></td>
<td>✓</td>
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</table>

Despite the absence of any specific recommendations in relation to navigational safety, there appears to be a positive relationship between the Forum and the Navigation Safety Special Interest Group, and some Forum members are in both groups. As well as the two groups sharing information with each other, a number of common (recreational boating safety) issues have been discussed, including signage near boat ramps, prosecutions, changes in legislation and bylaws, Search and Rescue, incident reporting, accident investigation, boat ramp surveys and other research. However, generally these issues are broader than navigational safety.

Emergent activities
Several regional councils have run campaigns on different aspects of navigational safety. For example, in 2008, Auckland, Waikato and Northland regional councils worked together on a joint campaign focusing on visibility of vessels and vessel speed: Auckland campaigned around visibility and navigation lights; Wellington promoted correct use of dive flags; Waikato promoted correct lighting on boats and visibility of kayaks.

Recent legislation has been put in place in relation to navigation. The Maritime Transport Amendment Act 2013 clarifies the relationship between national navigation safety standards and local navigation controls, and the associated responsibilities of the regional councils.

MarineMate is a new marine app for iPhone and Android devices. It was developed by Waikato Regional Council with funding from Maritime NZ, the ACC, Land Information New Zealand and regional councils, to provide information on boating regulations as well as tide times, boat ramp locations and essential information on safe boating practices and it covers all of the countries regional and unitary councils. To date, uptake of the app has been strong.
ENFORCEMENT

Progress on strategically planned activities
The 2007 Strategy document includes one recommendation in relation to enforcement. No enforcement activities have been identified from the 1999 report and there is no specific reference to enforcement in the Forum’s ToR.

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>2007</th>
<th>1999</th>
<th>ToR</th>
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</thead>
<tbody>
<tr>
<td>Improving capability, including the use of infringement notices for offences.</td>
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</table>

From the Forum minutes it would appear that since 2007 there has been a strengthened focus on enforcement by regional and unitary authorities. A number of regional and unitary councils have introduced infringement notices with instant fines; Queenstown Lakes District Council has introduced $500 infringement fines. As well as Queenstown, there were reports of increased land and/or water patrol enforcement staffing in relation to Auckland, Wellington and Bay of Plenty, and particularly so over summer. In February 2014, and as part of the review process, all regional and unitary authorities (and the Department of Internal Affairs in relation to Lake Taupo), were invited to provide information on recreational boating formal warnings, infringements, MTA section 65 warnings, and MTA section 65 prosecutions. Responses were received from 17 organisations. It should be noted that there were some differences in how organisations classified recreational boating warnings; two used different reporting years, three of the responses were estimates, and responses were not received from four (small) organisations. However, the national enforcement activity was reported as follows:

Table 2: Regional and Unitary Authority Recreational Boating Enforcement Activity 2011/12 and 2012/13

<table>
<thead>
<tr>
<th></th>
<th>2011/2012</th>
<th>2012/2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formal warnings</td>
<td>645</td>
<td>426</td>
</tr>
<tr>
<td>Infringements</td>
<td>256</td>
<td>245</td>
</tr>
<tr>
<td>MTA section 65 warnings</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>MTA section 65 prosecutions</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>
At one end of the spectrum, Auckland Council accounted for a large proportion of national recreational boating enforcement activity as above, over the course of these two years; for example almost half (48%) of all formal warnings issued nationally in 2011/12 were from Auckland Council. At the other end of the spectrum, four organisations, generally smaller ones, reported ‘nil’ responses – three of these went on to elaborate that they either did not have bylaws in place as a basis for undertaking enforcement activity, they were waiting to receive the necessary Parliamentary authority to issue infringement notices, or had only just received such authority. It is also worth noting that two of the organisations that had bylaws in place and were enforcing them, reported that they did not have jurisdiction over many or all of their inland waterways; MNZ advise that this is an issue in other parts of the country too, in which case it is MNZ that has jurisdiction over such lakes and rivers.

However, Regional and Unitary are increasingly being seen as the front-line regulatory and enforcement agencies for recreational boating. MNZ has also undertaken nine prosecutions since the publication of the 2007 review, which appears to be less than over the previous seven years.

**Emergent activities**

While the development of regional and unitary council bylaws on the compulsory wearing of lifejackets was not an explicit recommendation in the 2007 Strategy document, one consequence of the changes in some of these councils has necessitated a stronger focus on enforcement activity.

The 2013 amendment of the Maritime Transport Act enhances the powers of harbourmasters, enforcement officers and constables, as they are now able to enforce regulations and rules made under the Maritime Transport Act 1994. This is consistent with, and furthers, the Forum’s 2007 recommendation in relation to strengthening enforcement capability.
SAFETY AWARENESS CAMPAIGNS

Progress on strategically planned activities
The 2007 Strategy document included one recommendation on safety awareness. As well as highlighting the need for such work to continue, the report also emphasised the need for safety awareness campaigns to focus on lifejackets, communications, the weather and alcohol. The Forum’s ToR also charge the Forum with responsibility for coordinating national boating safety initiatives including those relating to safety awareness.

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>2007</th>
<th>1999</th>
<th>ToR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety awareness: Continuing the nationwide promotion of safety messages targeting the four key factors in the safety equation – lifejackets, communications, the weather and alcohol</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Co-ordinate national boating safety initiatives through national boating education and safety awareness programmes.</td>
<td></td>
<td>✓</td>
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</tbody>
</table>

Since 2007 MNZ has run a number of awareness campaigns including *Stay on Top* (addressing lifejackets in small craft at the time of the last review and subsequently going on to address communications equipment and weather, *Don’t be a Clown* on wearing lifejackets and the current *Get it on: Lifejackets for life*). WSNZ also ran a TV campaign in 2012 entitled *Our Way of Life – Boating*. A requirement to run such an annual campaign is included in the MNZ Statement of Intent. The “Clown” lifejacket campaign won four gold awards at the 2014 Communication Agencies Association of New Zealand Beacon awards.

Over recent years MNZ has commissioned a number of research studies that have sought to measure the impact of their awareness raising campaigns. From the latest study (IPSOS, n.d.) the TV advertisement recall rates was as high as 95% although, because of the particular sampling method used, this cannot be seen as being representative of all recreational boaters. Also, most of these studies used telephone interviewing which has some inherent limitations and particularly so in relation to self-reported behavioural change. Nonetheless, as can be seen in a recent synthesis of MNZ commissioned recreational boating research, the findings do provide evidence that some recreational boaters have responded positively to the campaigns.

Emergent activities
While not discussed in the 2007 Review report, MNZ last year initiated two sponsorship initiatives. The two hosts of the *Big Angry Fish* fishing show were sponsored to wear...
lifejackets on screen every time that they were on the water. The hosts were also to be seen checking the weather and demonstrating other responsible skipper behaviour. MNZ also sponsored the 2013 Bounty Hunter Fishing tournament in the Coromandel and ran the MNZ safety-themed best fishing video competition.

A recent important development has been the establishment of the Forum’s Communications sub-group. This provides Forum members with a mechanism to better coordinate, or collaborate on, their awareness raising campaigns and public information activities. Out of this group has come a Cross Agency Communications and Engagement Strategy (ideas shop, 2013) which has been endorsed by the Forum.

**Education and Training Courses**

**Progress on strategically planned activities**

The 2007 Strategy document includes one recommendation in relation to training or education. As the 2007 report supplements rather than supersedes the original 1999 one, four 1999 report recommendations are included here as well. Education also features in the Forum’s ToR.

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>2007</th>
<th>1999</th>
<th>ToR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increasing the opportunities for training and education for pleasure boat owners, and the number of operators attending courses.</td>
<td>✓</td>
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</tr>
<tr>
<td>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).</td>
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<td>✓</td>
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</tr>
<tr>
<td>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.</td>
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<td>✓</td>
<td></td>
</tr>
<tr>
<td>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.</td>
<td>✓</td>
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<tr>
<td>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.</td>
<td>✓</td>
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<td></td>
</tr>
<tr>
<td>Co-ordinate national boating safety initiatives through national boating education and safety awareness programmes.</td>
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<td>✓</td>
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</table>

From the Forum minutes it is apparent that there has been a significant amount of activity on training and education since 2007. Coastguard Boating Education Service (CBES) remains a major provider of recreational boating safety training. Through their national network of 117
accredited tutors and across 100 venues, approximately 40 recreational boating courses are now available through CBES; this includes several internationally recognised RYA/MCA qualifications. The CBES 2012/13 annual report indicates that they had 9,134 adult participants over the year.

Yachting New Zealand (YNZ) also provides training courses through their affiliated clubs and providers, and the New Zealand Underwater Association (NZUA) also delivers some courses for skippers. A list of CBES, YNZ and NZUA courses, along with the names of training provider organisations that deliver courses (mainly CBES, YNZ or RYA), are shown in Appendix 7.

Akin to a three-legged stool, an increased level of voluntary participation in recreational boating training was one of the three fundamental elements of both the 1999 and 2007 reports, and therefore the New Zealand approach to recreational boating safety (the other two being awareness raising campaigns/information, and interagency planning and coordination).

However, it appears that the 1999 recommendations on establishing targets on the uptake of structured training (as part of a suite of safety targets), and measuring progress against those targets, was either never implemented, or not sustained. This information was also to form much of the evidence base for whether or not there was a case for moving to a position of compulsory boating safety education. From the NPLSF minutes, no ongoing monitoring or analysis of the Canadian boating education system appears to have been undertaken either.

**Other emergent activities**

Notwithstanding the above, there have been a number of positive developments in relation to training which are consistent with the Strategy, as well as some broader education initiatives.

Alongside their classroom and practical hands-on courses, CBES has been offering home study as an option for some of its popular courses since 2007. It now offers 10 of its courses on this basis, and so can now potentially reach a wider range of recreational boaties from across the whole country. CBES has also developed a short eLearning module for those new to sea kayaking, and has also reported that it is moving into Facebook and pod casting delivery methods.
Both CBES and YNZ have been active in schools. In relation to secondary schools, the CBES foundation courses of Day Skipper, Boatmaster, and VHF are now aligned with the NZQA framework, and so secondary school students can gain course credits from undertaking these. CBES reports that it had 17,450 youth participants over 2013, and formal relationships with 70 high schools. YNZ’s existing SailSafe resource can be used to teach sailing principles and this also enables children to gain NZQA credits.

With a younger age-group, YNZ has developed the Volvo Sailing...Have A Go! programme, which has been designed to give 8 to 12 year old children the opportunity to experience sailing. Also, the New Zealand Sport Fishing Council (formerly the NZ Big Game Fishing Council), WSNZ and Fishing NZ have developed a new teaching programme “Hiwi the Kiwi” for use in schools. The aim of the programme is to promote safe and responsible sea fishing. By October 2012, the programme had been used in 470 schools.

**PUBLIC INFORMATION**

**Progress on strategically planned activities**
The 2007 Strategy document included no specific recommendations in relation to public information. However, recommendations on practical vessel usage guidelines and vessel care and maintenance guidelines were outstanding from the 1999 report and were also incorporated into the Forum’s ToR in 2000.
Recommendations

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>2007</th>
<th>1999</th>
<th>ToR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practical vessel usage guidelines. The Group [PBSAG] 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.</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>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 [PBSAG] 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.</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Develop national guidelines for:</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>• Best practice in safe boat usage.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Boat maintenance and boat design with particular emphasis on buoyancy and stability.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The 2007 review report identified that neither the 1999 recommendation on the development and promotion of practical vessel usage guidelines, nor the 1999 recommendation on the development of vessel care and maintenance guidelines, had been progressed in the terms proposed. From the minutes of Forum meetings, no further work since 2007 has been identified on these recommendations.

Emergent activities

However, notwithstanding the above, the provision of public information has been a strong area of activity since 2007. A significant development was the publication of the *New Zealand Boating Safety Code* (and an accompanying YouTube video) on behalf of the Forum, by the New Zealand Search and Rescue (NZSAR) Council. It is one of a series of codes that NZSAR have developed, under the AdventureSmart name, on different outdoor activities. It is actively supported on the websites of several Forum members.
MNZ and WSNZ’s Safe Boating: An Essential Guide has continued to be distributed widely and has, along with the accompanying DVD, been updated since the time of the 2007 review. The guide and the DVD also form the main components of a free safe boating pack which also includes a cellphone bag, two stickers and some leaflets. Since 2009/10, MNZ has been working to a performance measure of distributing at least 25,000 of these packs a year. For 2012/13 and beyond, this performance target was increased to 50,000. An online version of Safe Boating: An Essential Guide is available too. MNZ has also continued to include recreational boating features in their Lookout! And Safe Seas Clean Seas quarterly publications.

Other public information published by MNZ and other Forum members includes:

- New safety pamphlets, and new editions of its operator’s handbook (KASK)
- Safety brochures (Jet Sports Boating Association)
- Delving Deeper: Info & Statistics from Water Safety New Zealand (WSNZ)
- Kayaking safety short information module (CBES)
- Paddling to be Seen flyers (MNZ)
- Leaflets on 406 MHz EPIRBS (MNZ)
- Waka Ama Safety Rules (MNZ)
- New Zealand System of Buoys and Beacons (MNZ)
- Update of Radio Handbook for Coastal Vessels (MNZ)

One other development not envisaged in 2007 was the establishment of the Boat Safety in NZ YouTube channel in 2011. While understood to be in private hands, this initiative was established and funded by MNZ. There are 62 short videos and while some of these are copies of MNZ TV commercials and associated material, the majority are instructional films on different aspects of boating, and most of these concern recreational rather than commercial boating. In February, 2014, the channel had 556 subscribers and had received 1,563,824 views. Many of the videos, some of which had only been up for a couple of months, only showed as having 200-300 hits. However, videos on crossing a bar, and navigation lights had over 27,000 and 28,000 views respectively, and another on launching and retrieving boats from a boat-ramp, shows as having had over 1,300,000 hits, which by international standards is very high. MNZ has also developed a presence on Twitter.
BOATIE ASSISTANCE

Progress on strategically planned activities

Both the 2007 and the 1999 report contain a recommendation about Safe Boating Advisors (formerly Launch Wardens). While they have been included here in the Boatie Assistance section, in view of the breadth of their role, they could easily have been placed in either the enforcement or education sections instead.

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>2007</th>
<th>1999</th>
<th>ToR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safe Boating Advisors: continuing the development of the volunteer safety advisor and honorary enforcement officer programmes managed by MNZ and local authorities.</td>
<td>✔</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Launch Wardens:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• That the launch warden system be further developed and rationalised, as appropriate, under the control of the relevant authorities, working to consistent national standards.</td>
<td></td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>• 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.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Safe Boating Advisors (SBAs) replaced the previous system of launch wardens in 2003. MNZ currently has approximately 150 SBAs and has recently reconfigured how they are managed and deployed. This network of volunteers aims to “educate and raise awareness, as well as generally advise the boating public throughout New Zealand about safe boating practice and legal requirements, on behalf of Maritime New Zealand” (MNZ, n.d.). Some local authorities also continue to have honorary enforcement officers.

Emergent activities

Some time ago MNZ developed a free safe boating pack that continues to be distributed widely. The pack includes a booklet, leaflets, stickers and a ziplock bag to keep a cellphone dry. Several other Forum members also have ways of assisting boaties, for example WSNZ sells lifejackets at discounted rates.

Since about 2009, MNZ, WSNZ and CBES have been working together to run Boating Safety Check Days across different parts of the country.
COMMUNITY ENGAGEMENT

**Progress on strategically planned activities**

Community engagement in this section refers to relationship-based engagement with local, regional and ethnic communities and networks. One specific recommendation from the 1999 report is considered here, as well as two from the ToR.

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>2007</th>
<th>1999</th>
<th>ToR</th>
</tr>
</thead>
<tbody>
<tr>
<td>To consider social, ethnic and gender implications in safety programmes</td>
<td></td>
<td>☑</td>
<td></td>
</tr>
<tr>
<td>(this recommendation is also cited in the awareness raising campaigns section)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liaise with Māori and other ethnic communities to promote boating safety awareness.</td>
<td></td>
<td></td>
<td>☑</td>
</tr>
</tbody>
</table>

While the 2009 development of the ACC, Coastguard Northern Region and MNZ *Folau Malu Polynesian Safe Boating Advisors* programme in Auckland was not an initiative that directly came out of the 2007 review of the Strategy, it is nonetheless an important development and in a very practical way, seeks to strengthen recreational boating safety culture across, in this case, Auckland’s Pacific Island communities. The scheme involves individuals from Auckland’s Pacific Island communities being recruited, undertaking the CBES day skipper course, and then working as MNZ volunteer Safe Boating Advisers (SBA) who liaise with regional councils and provide boaties with information and advice on safe recreational boating. This is a significant development for the Forum.

Beyond this and other specific initiatives undertaken by individual Forum members, the Forum’s engagement with ethnic communities and Māori appears to have been limited, although it is understood that a Māori representative, in addition to the current representation of Waka Ama, is currently being sought for the Forum.

**Emergent activities**

CBES has developed a version of its *Day Skipper* course (and examination) in Chinese Mandarin. The *Boating Safety Code* has recently been translated into 16 languages. Those who visit the [www.adventuresmark.org.nz](http://www.adventuresmark.org.nz) website are encouraged to print-off a pdf of the leaflet and to distribute copies within their community. The Pasifika Festival and Polyfest in Auckland is also offering MNZ and the Forum valuable opportunities to engage with Pasifika boaties and their families. The WSNZ Kia Ora, Kia Manu water safety programme, originally established with MNZ, continues to target Māori and Pacific children and includes a component on boating safety.
SEARCH AND RESCUE

Progress on strategically planned activities
While Search and Rescue is a critical component of recreational boating safety, neither the 2007 Strategy document nor the original 1999 report included any recommendations on this. Similarly, there is no reference to Search and Rescue in the Forum’s ToR.

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>2007</th>
<th>1999</th>
<th>ToR</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Emergent activities
The satellite monitoring system that supported 121.5 MHz and 243MHz analogue distress beacons was replaced in 2008-2009 and required boaties to switch to 406MHz. With work undertaken by NZSAR and others, the transition was reported as being successful.

ACCIDENT INVESTIGATION AND ANALYSIS

Progress on strategically planned activities
The 2007 Strategy makes one recommendation in relation to accident analysis and four from the 1999 report. The collection, monitoring and analysis of information, including accident data, are also included in the Forum’s ToR.

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>2007</th>
<th>1999</th>
<th>ToR</th>
</tr>
</thead>
<tbody>
<tr>
<td>[Accident analysis] The NPBSF considers ongoing investigation and analysis an essential cornerstone for the development of a safety strategy…continuing the in-depth accident investigation and analysis of all fatal recreational boating accidents and, where possible, all other serious boating accidents.</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[Data collection] That the MSA take the lead in defining and coordinating the recording of recreational boating fatality and accident figures.</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>[Data collection] That the Australian National Marine Safety Committee (NMSC) approach to data collection and standardisation be examined for possible lessons for New Zealand.</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>[Data collection] 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.</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>[Data collection] 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.</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Collect, monitor and analyse accident data and other information in New Zealand and from overseas to identify trends and issues affecting boating safety.</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>
The 1999 recommendation that MNZ (MSA) take the lead in defining and coordinating the recording of recreational boating fatality and accident figures would have been implemented soon after the publication of the original report. However, in relation to the other three 1999 recommendations, little progress appears to have been made over recent years.

In relation to the 2007 recommendation on the continuation of in-depth accident investigation and analysis, MNZ has moved away from the routine investigation of all cases, and implemented a new compliance operating model across recreational and commercial boating, in which cases for full investigation by MNZ are considered on the basis of risk, attitude, harm and consequence. However, of the 32 recreational boating fatalities during 2011/12 and 2012/13 that were considered by the fatality review panel as part of the current review, no MNZ investigation reports could be identified.

**Emergent activities**

In some respects, DrownBase has emerged as a more useful resource on recreational boating fatalities than the system maintained by MNZ. Their boating factsheet, one of several that is downloadable from their website, describes fatalities by boat type annually from 2008 to 2012, along with five-year percentages in relation to gender, involvement of alcohol, type of waters, and ethnicity. They obtain their data from police reports, coronial reports and the analysis of hospital discharge data (Ministry of Health, 2014). There is some overlap with MNZ’s data collection processes that rely heavily on police information.

More detailed analysis can be requested by researchers and other interested individuals. However, as the name suggests, DrownBase collects and analyses death by drowning only, and so trauma-related recreational boating fatalities are excluded. There are also some other definition and jurisdiction differences between WSNZ and MNZ in the cases that they respectively include.
A related development is that in 2012, and in acknowledging that there was a need to strengthen the rigour of the data that was collected by key member organisations at that time, the Forum agreed to the establishment of a data gathering/sharing subgroup to set protocols for accessing all of the datasets available to members and to better facilitate the aims and objectives of the Forum.

**RESEARCH**

**Progress on strategically planned activities**

Beyond the previous references to data collection, analysis and reporting, neither the 2007 Strategy document nor the 1999 report include any particular recommendations about research beyond accident analysis. However, research activities are included in the Forum’s ToR.

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>2007</th>
<th>1999</th>
<th>ToR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collect, monitor and analyse accident data and other information in New Zealand and from overseas to identify trends and issues affecting boating safety (also listed under accident investigation and analysis)</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

**Emergent activities**

Since the 2007 review, there appears to have been an increase in the number of recreational boating research studies that have been commissioned by MNZ. However, few of these research reports have been published. In addition to the MNZ commissioned research studies undertaken by Colmar Brunton, IPSOS and Research New Zealand discussed in the MNZ *Synthesis of Research Conducted in Recreational Boating* (Vance, 2014) referred to previously, and the national annual boat ramp surveys coordinated by MNZ since 2011, there have been some other NZ research studies on, or related to, recreational boating safety from MNZ and other Forum members including ACC, Auckland Council; Waikato Regional Council and WSNZ (Beca, 2012; Purnell & McNoe, 2008; RNZ, 2009; Waikato Regional Council, 2011, 2013;). While relating to Auckland and not the whole country, it is also noteworthy that the current Auckland Council (2013) consultation document on their proposed navigational safety bylaw 2014, includes research findings from three non-representative surveys (a large People’s Panel survey, an online survey on the Council’s webpage and a face-to-face survey with two ‘harder-to-reach’ ethnic groups on four options on lifejackets); although boaters were mixed in their views, the community respondents were overwhelmingly in favour of lifejackets being worn at all times on vessels under 6m, when underway and when anchored or stopped.
Chapter Three Summary of Findings

- The Forum and MNZ have implemented a wide range of initiatives, both planned and emergent, since 2007. There has been strong progress on awareness raising through advertising (TV, online, print and radio), and public information. MNZ now also has a firmer funding base for the Strategy.
- However, for a variety of reasons, several other 2007 recommendations have not been implemented or otherwise successfully progressed, and some of the 1999 recommendations remain outstanding.
- While individual Forum members have continued to contribute to recreational boating safety in a variety of different ways, the Forum’s recreational boating strategy in practice, has remained primarily focused on awareness raising through advertising, and public information, with progress on the introduction of new regulations, and education and training, being more limited.
- In comparison to some other jurisdictions, the Forum’s strategy, both planned and emergent, has also paid relatively little attention to enforcement.
CHAPTER FOUR: CHANGES SINCE 2007 IN, OR AFFECTING, RECREATIONAL BOATING

DEMOGRAPHICS OF BOATIES

The profile of the typical kiwi boatie appears to be changing. For example, one recent research study (Research New Zealand, 2013) found that those who owned or had access to a recreational vessel were, on average, younger than the general population. While income was, on average, above the general population, almost half (46%) had an annual income of less than $80,000, and 43% were female (whilst reporting owning or having access to a recreational vessel is not necessarily the same as going out onto the water, the inference that women are now more involved in recreational boating than in the past, is in part supported by the Active NZ Survey 2007/08 (Sport and Recreation New Zealand, 2009), which found that 76,191 women reporting canoeing/kayaking at least once during the previous 12 months – this was 36.3% of the total number of canoeing/kayaking participants). The single most common type of vessel that these individuals owned or had access to, at 37%, was kayaks/canoes (power boats was a close second at 36%). Notably, this study also found that there were some significant differences between the profiles of those that owned or had access to powered vessels, non-powered vessels, kayaks/canoes, and other vessels (mainly dinghy or jet ski). For example, for kayaks/canoes, 42% had a bachelor degree or higher, whereas the corresponding figure for powered vessels was 28%.

In contrast, the 1999 report cited research undertaken by CM Research (n.d.) which described Auckland boaties as typically “male, New Zealand European, aged 30-49 years in the medium to high socio-economic bracket and not belonging to clubs” (as cited in PBSAG 1999, p. 19). The report goes onto say that:

In the rest of New Zealand, the profile of boaties closely resembles that of all New Zealanders, although, compared to the general population, boaties are more likely to be:

- Living in the Northern half of the North Island
- In the higher socio-economic group
- Married with school age children
- NZ Pakeha/European
- Have a household income exceeding $75,000
- Homeowners (rather than renting)

Younger boaties tended to act as crew or passengers, while analysis of the skipper tended to indicate a male, over 50 years, boat owner, belong to a boating club and going boating at least once a month. (PBSAG, 1999, p. 41)
While the above perhaps suggests a greater degree of homogeneity in the 1990s than was necessarily the case, the research evidence would suggest that the demographic of boaties, some of which was picked up in the 2007 review, has changed markedly since then. Indeed, it may be that even the term boatie, with its nautical inferences, is for some something of a misnomer and perhaps less helpful as a generic descriptor of vessel operators than it perhaps used to be? The 2007-2013 fatality data also suggests something of a shift from boating in the sea, to the use of lakes and rivers.

**The New Zealand Economy and the Global Financial Crisis**

While a detailed comparative discussion of the national economy over the period 2007-2013 is beyond the scope of this review, given the apparent correlation between a country or jurisdiction’s economy and the rate of boat ownership apparent in some international literature, a short discussion is pertinent.

According to the Treasury, between the years 2000 and 2007, the New Zealand economy expanded by an average of 3.5% per year. Private consumption grew strongly over this period. However, in March 2008, which happened to be the same month that Boating Safety Strategy: 2007 Review of the New Zealand Pleasure Boat Safety Strategy (NPBSF, 2008) report was published, the country entered into a recession. Later on in 2008, as the effects of the global financial crisis intensified, the outlook for the New Zealand economy deteriorated sharply with high fuel and food prices, rising unemployment, high interest rates and falling house prices (New Zealand Treasury, 2010).

However, once out of recession in June 2009, the New Zealand economy has, along with Australia, grown stronger than most other OECD countries with growth of 1.7%, 2% and 3% in 2010, 2011 and 2012 respectively (New Zealand Immigration, 2012). Therefore the economic conditions over the course of the seven years before and after the 2007 review have been markedly different. While the precise impact of these economic developments can only be speculated on, it appears to be reasonable to assume that there will have been an impact on vessel purchasing decisions, i.e. whether and what size, vessel selling decisions in terms of realising an asset, and perhaps to a lesser extent in relation to power craft, decisions on whether to fuel and take out a boat, as well as the boating industry more generally.
NEW ZEALAND BOATING INDUSTRY

With current annual projected growth of approximately 10% per year over the next 10 years, industry figures indicate that sales of most classes of vessel decreased significantly over the period 2008-2011. NZMIA, 2012).

Table 3: Forecast and Actual Sales $m 2005-2010

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Trailer power boats</td>
<td>141.0</td>
<td>199.0</td>
<td>221.1</td>
<td>124.4</td>
<td>136.1</td>
<td>144.9</td>
<td>161.3</td>
<td>170.3</td>
<td>182.1</td>
<td>227.7</td>
<td>103.3</td>
<td>6.2%</td>
</tr>
<tr>
<td>Yachts &amp; launches</td>
<td>244.0</td>
<td>230.0</td>
<td>264.1</td>
<td>160.9</td>
<td>156.8</td>
<td>203.1</td>
<td>255.9</td>
<td>329.5</td>
<td>401.5</td>
<td>495.5</td>
<td>334.6</td>
<td>11.9%</td>
</tr>
<tr>
<td>Super-yachts</td>
<td>222.0</td>
<td>220.0</td>
<td>258.8</td>
<td>191.1</td>
<td>205.0</td>
<td>237.0</td>
<td>312.0</td>
<td>339.3</td>
<td>375.6</td>
<td>573.7</td>
<td>382.6</td>
<td>11.6%</td>
</tr>
<tr>
<td>Racing yachts</td>
<td>38.0</td>
<td>26.4</td>
<td>41.7</td>
<td>17.7</td>
<td>18.4</td>
<td>20.5</td>
<td>21.1</td>
<td>21.8</td>
<td>22.5</td>
<td>27.3</td>
<td>9.5</td>
<td>4.4%</td>
</tr>
<tr>
<td>RHIBs</td>
<td>33.0</td>
<td>57.4</td>
<td>70.6</td>
<td>46.1</td>
<td>48.6</td>
<td>46.2</td>
<td>60.9</td>
<td>70.4</td>
<td>77.9</td>
<td>129.7</td>
<td>83.6</td>
<td>10.9%</td>
</tr>
<tr>
<td>Kayaks, PWC dinghies etc.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3.4</td>
<td>4.5</td>
<td>4.5</td>
<td>5.6</td>
<td>5.6</td>
<td>5.6</td>
<td>5.6</td>
<td>2.3</td>
<td>5.2%</td>
</tr>
<tr>
<td>Ship &amp; workboats</td>
<td>-</td>
<td>-</td>
<td>441.6</td>
<td>329.9</td>
<td>353.8</td>
<td>334.7</td>
<td>344.3</td>
<td>353.8</td>
<td>382.5</td>
<td>573.8</td>
<td>243.9</td>
<td>5.7%</td>
</tr>
<tr>
<td>Total</td>
<td>678.0</td>
<td>732.8</td>
<td>1,297.9</td>
<td>873.5</td>
<td>923.2</td>
<td>990.9</td>
<td>1,161.2</td>
<td>1,290.8</td>
<td>1,447.8</td>
<td>2,033.3</td>
<td>1,159.8</td>
<td>8.8%</td>
</tr>
</tbody>
</table>

Source (adapted from Market Economics, 2012)

CLIMATE

There is some evidence to support what most recreational boaters probably consider to be self-evident common sense – that more people probably go out on the water in years with a lot of good weather than they do in years with a lot of bad weather. Irrespective as to the reasons why, mean average annual temperatures are rising in New Zealand (NIWA, 2014) and modelling suggests that they will continue to rise – be it slowly, over time. While this may have some longer term implications for recreational boating in New Zealand, the more immediate issue is the apparent correlation between high mean average annual temperatures and the number of recreational boating fatalities. For example, since New Zealand records began, the three years with the highest mean average annual temperatures were 1998, 1999 and 2013; these were all years with high fatality rates. Therefore, all other things being equal, more people on the water is likely to be associated with more recreational boating fatalities, and fewer people on the water with less. Thus, this also needs to be considered when monitoring, or making evaluative judgments about, new initiatives.
**Population Growth and Demographic Changes**

The New Zealand population is currently over 4.5m. Since the Strategy was reviewed in 2007, Statistics New Zealand estimates (Statistics New Zealand, n.d.) indicate that the country’s population has grown from then to June 2013 by almost a quarter of a million people (242,700) or 6%. Population growth since the Strategy was first published in 1999 has been 636,000 people or 17%.

As well as an overall increase in population, in common with other similar countries, New Zealand has continued to experience a number of demographic changes. The most significant of these continues to be the aging of the population. Over the period 2002 to 2012 the number of people aged 65 increased by 31%; the 65+ age group is itself aging too due to increased longevity. Over the same period, there was also significant increase amongst those aged 40-64 (20%) with a more modest increase amongst ‘young workers’ of 6%. The numbers of those under the age of 14 remained largely unchanged (Statistics New Zealand, 2012). Māori population estimates also increased over the 2002-2012 period to 682,000, with the Māori population being much younger than the general population.

**National Profile of Safety Issues**

Anecdotally, the profile of safety in New Zealand has increased since 2007. Outside of the recreation and adventure tourism areas, a number of tragedies and other events since 2007 have served to bring safety risks, the prevention of accidents, and the promotion of safety, to the general public’s attention. The two stand-out events, along with their enduring aftermath, must be the Christchurch Earthquake and Pike River Coal Mine; these have had, and continue to have, a profound effect on the country’s attitudes towards, and approach to, risk identification, mitigation and management, and particularly so in relation to building design and workplace health and safety. Other workplace health and safety issues of public interest have included the high level of forestry industry fatalities and farm deaths with quad bikes. In the health arena there has been a strong focus on harm reduction in relation to both smoking and alcohol consumption, with increasing taxes on the sale of tobacco and a tightening legislation in the form of the Sale and Supply of Alcohol Act 2012 and other related legislation. In the transport space, the Police are now combating speeding by prosecuting drivers who are caught driving in excess of 104km/hr as well as the alcohol to blood threshold for motor vehicle drivers dropping from 0.8 to 0.5. Another recent announcement
from the police is that they will now undertake a short roadside vehicle check whenever they stop a car.

Across these different areas, there has been a strengthened response from the government, which in most instances has included new regulation and/or enforcement.

**NEW ZEALAND PARTICIPATION RATES**

The evidence on whether recreational boating participation rates have increased since 2007 is unclear. The 2007 review stated in relation to the period since 1999 that:

> There has been little change over time in the number of people involved in recreational boating. The Pleasure Boat Safety Advisory Group report [1999] concluded that approximately 1.5 million New Zealanders made a voyage in a pleasure craft each year. Other surveys have [(for example AGB McNair, 1996; MRL, 1996)] consistently indicated a figure of 1.4 to 1.5 million participants annually, or one in three New Zealanders. (NPGSF, 2008, p. 17)

However, in the 1999 report the Pleasure Boat Safety Advisory Group expressed some caution about the accuracy of survey findings that 41-43% of the New Zealand population were recreational boaties. Later that year the MNZ 2007/08 annual report appeared to downplay these findings and states that New Zealand had over a million recreational boaties and 20,000 new recreational boaties each year.

While there are some issues with the *Rates of Participation in Recreational Boating* survey (Research New Zealand, 2013), (for example, as it is an omnibus survey the margin of error is rather high), this study found that only 24% of respondents (adults aged 18 or over) stated they “own, or have the use of, some type of vessel for recreational boating purposes” (Research New Zealand, 2013, p. 4). This would seem to suggest the possibility of a significant reduction in the number of recreational boating participants rather than the widely believed, and probably more likely, increase.
NUMBER OF VESSELS
On the other hand, while the 2007 review based all of its projections and estimates on the basis of there being an estimated 350,000 pleasure boat vessels in New Zealand in 2006, the above Research New Zealand study estimated that there were 900,000 recreational vessels (RNZ, 2013). There is other evidence that ownership levels for at least some types of vessel have increased since 2007. For example, the number of registered boat trailers has grown from 120,220 in 2007 to 133,619 in 2012 (Ministry of Transport, personal correspondence) and as such represents an increase of 11%. However, the estimate of there being 900,000 recreational vessels is significantly higher than the marine industry’s January 2014 estimate of New Zealand boat stock (excluding 5,495 moored commercial boats) at 509,360 (NZ Marine Industry Association of New Zealand, personal correspondence).

TYPE OF VESSELS
The findings from the Rates of Participation in Recreational Boating survey (Research New Zealand, 2013) suggest that there may have been a significant shift in the proportions of different types of recreational boats owned in New Zealand. While the 2007 review did not provide tabular data on types of recreational boating vessels, the report did identify that there had been a strong increase in the number of small pleasure craft (dinghies, kayaks and small sailing craft) and highlighted that the number of kayaks and canoes being sold by manufacturers had increased significantly over recent years – up to 10,000 a year. The 1999 report bases its discussion on the types of recreational boating vessels in New Zealand on a market research report (CM Research, 1997). Significantly, while this survey uses six specific categories of types of vessel, kayaks/canoes were not amongst these and were included in a seventh ‘other’ category along with rowing skiffs and rafts. In contrast, the recent 2013 RNZ survey found that more respondents reported that they own/use a kayak/canoe than any of the other categories. However, in contrast, industry sources suggest no significant shift since 2007, with all of their vessel categories, with the exception of Personal Water Craft (PWC), up across the board (NZ Marine Industry Association, personal correspondence).
Chapter Four Summary of Findings

The profile of the typical kiwi boatie appears to be changing. For example, one recent research study found that those who owned or had access to a recreational vessel were on average younger than the general population, and more likely to be on a low or moderate income, than is understood to have been the case in the past. A significant minority of such individuals are now female, with the single most common type of vessel that they owned or had access to, being kayaks/canoes.

There have been a number of other changes since 2007 including:

- New Zealand going into recession in 2008 and effects of the global financial crisis
- A significant decrease in sales of most classes of new vessels over the period 2008-2011
- The population of New Zealand growing by almost a quarter of a million people
- The number of people taking part in recreational boating, in all likelihood, going up and
- A stronger national profile of safety issues, with for example arising from the Christchurch Earthquake and the Pike River Coal Mine.
CHAPTER FIVE: INTERNATIONAL DEVELOPMENTS

Internationally, and particularly in western English-speaking countries, recreational boating generally continues to grow in popularity. While there has been an apparent overall decline in the US in terms of the number of recreational boats in use over the period 2005 to 2011 from 17,670,000 to an estimated 16,350,000 (the latter being the latest year for which this data is publicly available), US participation numbers are increasing (National Marine Manufacturers Association, 2012). In most western English-speaking countries, the number of non-powered paddle craft is growing strongly.

JURISDICTIONAL COORDINATION AND PLANNING

In Canada, the Canadian Safe Boating Council (CSBC), which is a registered charity, nationally manages a range of recreational boating safety events and activities including the North American Safe Boating Awareness Week (in relation to Canada), an annual recreational boating safety symposium, the national safety website www.SmartBoatie.ca for recreational boaties, the Canadian Safe Boating Awards, an annual media campaign, outreach programmes on cold water awareness, and PFD advocacy work. Some, although not all, of its time–limited funding, comes through Transport Canada’s Office of Boating Safety. Established in 1991 to improve communications between government departments and recreational boating organisations and companies, CSBC is now a membership-based organisation with board level representation from a wide range of recreational boating organisations and government agencies. The National Safety Boating Council in the US has a similar role and function, although in the US much of the work on recreational boating safety is undertaken at the state level.

No other national multi-agency recreational boating planning structure that is similar to that in place in New Zealand, Canada or the US has been identified in the current review. In the United Kingdom (UK), the National Water Safety Forum is beginning to get some traction in relation to recreational boating safety, although its remit is broad and includes all water activities. In relation to other parts of Europe, no national multi-agency recreational boating planning structures have been identified. In Australia, state-level recreational boating safety planning tends to be undertaken by their equivalents of MNZ.
Similarly, other than New Zealand, the current study has only identified one other country with a national interagency (marine and non-marine) recreational boating strategic plan. The Strategic Plan of the National Recreational Boating Safety Program 2012-2016 in the US (USCG, 2011) has been co-signed by the heads of 24 different organisations, has 11 national objectives which are supported by a range of initiatives, and sets fatality targets. The US Coastguard funds recreational boating safety in all 56 US jurisdictions.

**REGULATION**

This review has found that New Zealand has one of the least regulated recreational boating sectors in the western world. Appendix 4 outlines a range of interventions and initiatives (including regulatory ones) that are in place in some other jurisdictions. While the Forum has over recent years focused much of its energy on the important issue of lifejackets and the circumstances in which it should be mandatory for them to be worn, most western countries and states also have a wider range of regulatory measures in place for some or even most of the following:

- Mandatory vessel registration
- Mandatory skipper licensing/education/proof of competency
- Mandatory manufacturing standards
- Mandatory lifejacket wearing for children
- Prescribed alcohol limits
- Mandatory 3rd party powerboat insurance
- Aside from lifejackets, extensive mandatory requirements for other safety and communications equipment.

**VESSEL MANUFACTURING AND MAINTENANCE**

Most other countries that New Zealand compares itself to, have some form of mandatory construction standards in place for recreational boating vessels. These include the US *Boatbuilder’s handbook* (USCG, 2013), Canada’s *Construction standards for small vessels* (Transport Canada, 2013) and the European Union’s *Recreational Craft Directive*; the latter covers all EU members including the UK, Ireland, France, Denmark, Sweden and Finland and compliance with the *Recreational Craft Directive* is a legal requirement for all vessels sold within European Union countries. Such vessels carry the CE mark.
In the US, the mandatory construction standards include a prescribed floatation test that each boat or sub part must be manufactured, constructed or assembled to pass. As this is a mandatory requirement, the US Coastguard (USCG) has the authority, which they exercise (Hoedt, 2013), to randomly check boats; as a result of such checks, manufacturers may have to issue a product recall and rectify the problem. As well as mandatory standards, the American Boat and Yacht Council (ABYC) has for over 60 years been developing safety standards for the design and construction of boats, as well as equipage, repair and maintenance (ABYC, 2014). These standards appear to have been very influential within both the US and internationally.

In terms of second hand boats, most comparable jurisdictions do not have mandatory vessel inspection systems in place. The only scheme that has been identified as part of the current review is in the UK. There, vessels on many inland waterways (canals, rivers, lakes and lochs) are required to undertake a vessel inspection every four years. The model is broadly similar to a car Warrant of Fitness system, where the regulatory body sets the standards and the boatie independently engages an accredited inspector to inspect the vessel and provide a certificate.

**Navigational Safety**
Notwithstanding the international ‘rules of the road’ in the form of the *International Regulations for Preventing Collisions at Sea* (International Maritime Organization, 1972), other countries have a variety of different arrangements in place for navigational safety that may be at the national, state/province or local authority level.

**Enforcement**
In the US, there is a strong focus on enforcement. As one international key informant put it during his interview:

…out of the 22 million vessels that we have in our country, the USCG will board between 30,000-40,000 vessels per year to check for compliance and deal with legal violations…The States however, will stop and board over 1.7 million boats per year (International Key Informant, US).
While the USCG is an arm of the military, in Canada the Coastguard has no military or law enforcement responsibilities. Much of the Canadian enforcement in relation to recreational boating laws and regulations is undertaken by the Royal Canadian Mounted Police, with some additional involvement from other federal, provincial or municipal agencies. There is perhaps less of a focus on enforcement activities in Australia, the UK and France than in North America. However, a range of enforcement functions are carried out in these countries by police, local authorities, and in some instances, national maritime or inland waterways agencies.

**Safety Awareness Campaigns**

Most countries similar to New Zealand carry out awareness raising campaigns and TV commercials, often integrated with one or more other channels, and this is a popular option. One notable exception is the UK; their lower recreational boating participation rate possibly makes TV a less cost-effective medium.

In the US, awareness raising campaigns are run both nationally and by many of the states. The USCG and these states have built up considerable experience in developing such campaigns over many years. Minnesota has been identified as one state with a long history of producing TV commercials, some shocking and some humorous, with a particularly high viewer recall rate; 17 of their previous commercials can be viewed on YouTube. In Canada, the Canadian Safe Boating Council runs an annual campaign which they launch during North American Safe Boating Awareness Week. Some Australian states also run TV awareness raising campaigns.

Most international key informants recognised awareness raising campaigns as an important component of their country or jurisdictions strategy to reduce recreational boating fatalities and serious injuries.
EDUCATION AND TRAINING COURSES

The development and promotion of boating training courses is central to most jurisdictions’ approaches towards recreational boating safety. For example, all US states have to have an USCG-approved education programme, and in 49 of the states some form of education or training is mandatory. Indeed, the vast majority of western jurisdictions have some form of mandatory education and/or proof of competency requirement for vessel operators. However, it is important to emphasise that internationally, mandatory requirements vary enormously and can be anything from taking a low cost 10 minute online theory test from home on the ‘rules of the road’ with no education component, to attending a compulsory theory and practical course and passing both a classroom and on-water hands-on examination. It is also important to recognise that many mandatory education schemes have exceptions for certain vessels; for example not many include un-powered vessels. Another significant issue in the US in particular, is that in some jurisdictions, such requirements may be phased-in over many years, sometimes as many as 50+ years, as it only applies to those born after a specific date.

Closer to home, most Australian states have a mandatory education and/or proof of competency requirement. In Queensland, prospective licensees with a powered vessel (over 6hp) or PWC, are required to demonstrate that they can competently navigate and manage a recreational boat by successfully completing an approved training course; this forms part of their recreational marine licensing process. Theirs is a one day course and includes theory, on-water experience and assessment. The requirement in Tasmania is similar although only the theory component is tested. One possible unintended consequence of mandatory education and/or proof of competence in some jurisdictions, is that little attention may be given to the education and training of other boaters. Similarly, a focus on ‘minimal’ standards may also take away from the need for boaters to consider additional specialist or advanced courses.
The Canadian Boating Education system referred to in the 1999 report is something of a hybrid model. All operators of powered vessels are required to carry *Proof of Competence*; operating a vessel without carrying such proof risks a $250 fine or more. The model was transitioned in over a ten year period. Anyone born after April 1, 1983, who operates a pleasure craft fitted with a motor, and all operators of pleasure craft fitted with a motor and less than four meters (13.12 feet) in length, are now required to have proof of competency on board at all times. As of September 15, 2009, all other persons who operate pleasure craft of any size fitted with a motor will have to carry proof of competency (Transport Canada, 2012).

Proof of competency in Canada can take one of three forms:

- Proof of having successfully completed an appropriate boating safety course in Canada prior to April 1, 1999.
- A Pleasure Craft Operator Card issued following the successful completion of an accredited test.
- A completed rental-boat safety checklist (for power-driven rental boats, valid for the rental period).

The Canadian Pleasure Craft Operator Card is issued for life. While it is understood that mandatory training for many was a component of the original scheme, it seems that this particular requirement was relaxed early on (Marico Marine Group, 2007). Therefore, although attending an accredited course is strongly recommended, it is not a legal requirement. Transport Canada also recommends undertaking occasional refresher training.

**PUBLIC INFORMATION**

Most jurisdictions where recreational boating is popular publish a recreational boating handbook or guide for boaties in print and online. These tend to be much more comprehensive than the New Zealand equivalent referred to above. For example, in Australia, the *Northern Territory Safety Guide for Pleasure Craft, Tasmanian Safe Boating Handbook, South Australian Recreational Boating Safety Handbook, Queensland Recreational Boating and Fishing Guide (2012-2013 edition), New South Wales Boating Handbook* and *Victorian Recreational Boating Safety handbook* contain 52, 71, 100, 100, 140 and 148 pages respectively (number of pages A4 or equivalent). One reason for the greater length is that these jurisdictions have more laws, regulations and rules in the first place that need to be explained (i.e. more mandatory requirements). Another is that for owners of motor boats and some other craft they will also be the source material for their skipper’s license theory test.
In terms of websites, while almost all maritime, water sports and water safety organisations in most western countries carry varying amounts of recreational boating information on their individual websites, the Canadian site www.SmartBoatie.ca, under the auspices of the Safe Canadian Boating Council, offers an example of a comprehensive national recreational boating safety website that is supported by all key national agencies. One strong feature of the website is that the user can get tailored information based on their type of vessel and length (15 options in all), in relation to mandatory safety equipment requirements, recommended safety equipment requirements, rules and regulations, rules of the road, aids to navigation, signaling for help and necessary preparation to be undertaken before they head out on the water.

**Boatie Assistance**

Many jurisdictions have voluntary notification of boat trip scheme/float plan/sail plan. Canada and Sweden have national courtesy vessel checking schemes (Transport Canada, 2013d; SweBoat, n.d.), with the Swedish scheme having a particular focus on older vessels. In the US, ‘Vessel Safety Checks’ (VSC) are undertaken by the USCG. The skipper is provided with a VSC sticker – and this should lead to less contact with enforcement officers) (USCG, 2000). In the UK, the Royal National Lifeboat Institution’s (RNLI) national network of volunteers does a lot of work for the benefit of boaties, for example holding of lifejacket maintenance workshops (Chennell, 2013).

**Community Engagement**

Traditionally, community engagement in some jurisdictions has not been a strong feature and may have been largely limited to having a presence at national boat shows. However, one way of supporting and integrating national and local community engagement activities that is reported to have been very successful is the North American Safe Boating Awareness Week. Jointly co-ordinated by the Canadian Safe Boating Council in Canada and the National Safe Boating Council in the US, the North American Safe Boating Awareness Week is very much the annual centrepiece of recreational boating safety activities in both countries. Timed for late spring, the week blends nationally orientated Ministerial statements, social marketing campaigns, press conferences, report and research releases and press releases, with a wide variety of coordinated small volunteer-led activities at boat ramps, boat clubs and communities across the country. The cost for this heightened level of impact is virtually no more than what would otherwise have been spent over the course of the year anyway.
One of the international key informants reported that they put a strong focus on seeking to strengthen the recreational boating safety culture through positive community engagement. Indeed, he went as far as to say that “our relationship with the boating community…is sensational. They love us. They literally love us” (International Key Informant). Central to their approach is regularly getting their recreational boating staff in front of large groups of boaters:

[We] have done 40 education nights where they go out to local areas and send invitations to all people in specific postcodes. They do a 90 minute presentation and include a guy from the met office who talks about local weather forecasting, talk through some key safety issues, e.g. cold water immersion, servicing lifejackets etc. and do some demonstrations, e.g. how to set off a flare etc. They get a local sailing or boating club to host, spend $100 on sausages that the club sells and so, along with often opening the bar, it is a funding and recruitment opportunity for the club too. Also valuable for the government regulator to mix with the boating public and answer questions (International Key Informant, Australia).

SEARCH AND RESCUE
While many Search and Rescue functions have a high degree of reliance on volunteers, there are some differences across jurisdictions in their Search and Rescue arrangements for recreational boating incidents. In the UK and Ireland, the RNLI (known as Lifesaving Ireland in the Republic of Ireland) has been providing Search and Rescue at sea (and a few inland waterways) for 177 years and remains very much the dominant organisation, with the actual coordination of searches at sea being undertaken by the Maritime Coastguard Agency. In Canada, Search and Rescue is the joint responsibility of the Canadian Coastguard and National Defence, which works closely with provincial and municipal governments and private organisations. In Australia, the Search and Rescue service is a Federal responsibility and is provided by AusSAR which is part of the Australian Maritime Safety Authority.

ACCIDENT INVESTIGATION AND ANALYSIS
In the US, the USCG-approved marine casualty reporting system (including investigations) is one of the requirements necessary to gain recreational boating funding from the federal government. All 56 jurisdictions have such approved systems in place. On the basis of this, and with their own data in relation to those areas where they have jurisdiction, the USCG publishes comprehensive statistics annually on US recreational boating fatalities and accidents. The USCG has been publishing statistics on recreational boating accidents, injuries and fatalities since 1960 (Tomczuk & Maxim, 2010).
In Canada, while responsibility for investigating recreational boating accidents rests with the provinces and the Royal Canadian Mounted Police, the national collection of preventable water-related deaths has involved a number of organisations including the Canadian Red Cross and the Lifesaving Society. Using a comprehensive standardised survey instrument, volunteers extract details of recreational boating deaths from the Office of the Chief Coroner or Chief Medical Examiner in each province. Usefully, the Canadian system differentiates between interim data and final data, with the former being based on news clipping services and the latter on verified coronial reports and findings. While this results in a significant time lag between fatalities happening and being nationally reported, it does mean that the information on the individuals concerned is very reliable, and unlikely to be subsequently changed. The downside of the Canadian system is that it is estimated that their level of recreational boating fatality ‘missing records’ can be as high as 5% (Transport Canada & Canadian Red Cross, 2011). While their reports are adjusted accordingly, it is less than ideal.

In the UK, recreational boating fatalities are included in the annual report of the Marine Accident Investigation Branch (MAIB), an independent part of the Department of Transport. However, reporting all recreational boating accidents is not a statutory requirement and this agency has a strong focus on commercial boats and ships. The Water Incident Database (WAID) which is an initiative of the National Water Safety Forum, is emerging as a more comprehensive data collection resource in relation to recreational boating fatalities. Working with the Royal Society for the Prevention of Accidents, the Forum is an association of organisations with a range of interests and responsibilities regarding water safety, including sports governing bodies, rescue services, regulators, navigation and harbour authorities, local government, utilities, and other representative groups. Data from member organisations is provided via direct entry or bulk uploads. WAID searches for multiple records of a single incident and merges these into a new and more comprehensive record. A WAID report has been published annually since 2009.

In relation to Australia, it is understood that the National Marine Safety Committee (NMSC) used to collate data from the states and territories and publish this on a national basis. However, it is appears that this function, and all of the old data, has been transferred across to the Australian Maritime Safety Committee (NMSC). No national published material on recreational boating fatalities has been identified.
RESEARCH
While not surprising given its size, the national maritime safety organisation identified internationally with the strongest focus on research is, by far, the USCG. They have a strong research agenda that encompasses undertaking research themselves, commissioning others to undertake research on their behalf, or, more broadly, funding other organisations who are required to undertake or commission research as part of their grant funding. The USCG also works closely with the Recreational Marine Research Center at Michigan State University.
As well as the national fatality and serious injury reports that they publish annually as previously discussed, one of the most important USCG research studies is the National Recreational Boating Survey (NRBS) (USCG, 2011) which was last undertaken in 2011. Based on 35,700 completed surveys, the NRBS, which encompasses a boat owner survey, a trip survey and a participant survey, is designed to establish national recreational boating estimates including:

- participation rates at both the national and state level by: owners and non-owners; vessel type; and boat ownership,
- boating exposure rates by: number of days different types of vessel were out on the water; average number of hours vessels were out; and average number of people on vessels,
- ownership and boat use rates,
- economic significance and impact,
- safety and awareness behaviours, and
- actual accidents as against previously reported accidents.

Maritime and water safety organisations in other countries also commission or undertake research, although in relation to maritime safety organisations much of it is unpublished. In terms of the broader research literature, most of the other recreational boating research studies identified and included in the abbreviated review of the international research literature (Appendix 3) as part of the current review, were also from the US. However, several research studies from other countries, including Australia and Canada, were also identified and included.
Chapter Five Summary of Findings

- Internationally, recreational boating generally continues to grow in popularity. In western English-speaking countries, there has been a significant increase in the number of participants using various forms of un-powered paddle craft.
- Since the time of the original 1999 report, there has been a continued shift amongst western countries towards more regulation of recreational boating. This pattern has been particularly marked in both Australia and the countries of the European Union. In comparison to Europe, North America and Australia, nationally New Zealand’s recreational boating is lightly regulated.
- North America, and the US in particular, has a strong focus on enforcement.
- Vessel manufacturing standards are also an important component of national recreational boating safety systems in North America and the European Union.
CHAPTER SIX: RECREATIONAL FATALITIES IN NEW ZEALAND SINCE 2007

This section firstly presents MNZ administrative data on recreational boating fatalities since 2007, and then goes on to provide a more detailed analysis from the current Review’s Fatality Panel’s consideration of all deaths over 2011/12 and 2012/13. Due to the limited amount and nature of information held by MNZ on serious injuries, it is not included here.

2007 – 2013

Number of fatalities

Over the period 1 January 2007 to 31 December 2013, MNZ has details of 115 reported recreational boating fatalities that meet their definition and jurisdictional requirements. These are shown below.

Figure 1: MNZ recreation boating fatalities 2007-2013 with polynomial trend line

With most notifications coming from the New Zealand Police, and MNZ also using a media clipping service, it appears highly likely that this figure includes almost all, or all, people who, over the last seven years, died in recreational boating incidents that met the MNZ criteria. However some of these fatalities, and particularly those in 2013 and 2012, will not yet have been through the coronial inquiry process, and so whether they are deemed to be recreational boating fatalities may be subject to change.
While a polynomial trend line is a better fit for the data than a linear one, as can be seen from the following figure, if a linear trend line is used, the number of recreational boating fatalities since 2007 is shown as trending upwards.

**Figure 2: MNZ recreational boating fatalities 2007-2013 with linear trend line**

As a sufficiently robust estimate of the number of recreational vessels has not been identified, no attempt is made here to present these fatalities per 100,000 vessels or similar. However, as identified in the previous section, there has probably (and in contrast with some other countries) been an increase in vessel numbers since 2007 and so the rise needs to be seen in this context.

What is more positive is that despite this increase in vessel numbers, the total of 115 fatalities since 2007 is less than the total for the previous seven years, and since the establishment of the Forum. Over the period 1 January 2000 to 31 December 2006, there were a total of 124 recreational boating fatalities (the 2007 Review report gives this figure as 123 because the data cut-off date for the report was October 2006).

By way of comparison, WSNZ, using slightly different criteria to those of MNZ (for example, the eight Easyrider fatalities from 2012 fall outside of the MNZ parameters), shows fatalities from 2007 to 2012 as follows:
However, with the exception of 2007 and 2012, the annual rates are very similar.

**Age of victims**

Beyond a description of a typical boatie in the 1999 review and a reference to a research study that profiled Auckland boaties as “male, New Zealand European, aged 30-49 years in the medium to high socio-economic bracket and not belonging to clubs” (CM Research cited in PBSAG 1999, p.19), there was little discussion of the age of recreational boating victims in either the 1999 or 2007 review reports. The following graph shows the ages of the 115 people who died since 2007.

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**Figure 3: WSNZ recreation boating fatalities 2007-2012**

![WSNZ recreational boating fatalities chart](chart1.png)

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**Figure 4: Total recreational boating fatalities 2007-2013 by age group**

![Total recreational boating fatalities chart](chart2.png)
Neither the 1999 nor the 2007 reports make any mention of children dying in recreational boating incidents. However, over the period 2007 to 2013, six children, five boys and a girl, believed to be aged 5, 6, 7, 8, 9 and 11, died (this total of six excludes the 7 year old on the Easy Rider commercial vessel in 2012, and the 13 year old who died in January 2014 in Southland). While there have been child fatalities before, for example, two children died in separate incidents in 2005, fatalities amongst those under the age of 15 now account for 5% of all fatalities since 2007.

At 17 (15%) deaths, the number of fatalities amongst those aged 15-24 (which may include other children aged 15 to 17) represents the second equal largest age group of fatalities over the period (the other being those aged 55-64 years). Taken together, those under the age of 25 account for 22% of all recreational boating fatalities since 2007. As well what appears to be an increase in younger fatalities, there was also a high proportion of fatalities at the other end of the age spectrum too, with 21 (18%) of victims being over 65 years of age, 38 (33%) over 55, and 68 (59%) over 45.

However, by far the largest single age group was the 30 (26%) aged 45-54 years. From the graph it is also apparent that with this apparent polarisation, the fatalities in one of the Forum’s key target age-bands, 35-44, were comparatively low at only 10 (9%). Forum target groups are discussed further in the next section.

**Regional or unitary authority area**

Again, the 1999 and 2007 reports did not present information on the geographical location of recreational boating fatalities. However, from the following graph, given their relative sizes, it would appear clear that Southland and Otago are over-represented and Auckland is under-represented.
Figure 5: Total recreational boating fatalities 2007-2013 by region

Types of event
The types of event or accident are shown in the table below. As was the case in the 2007 report, capsizing, as recorded by MNZ, remains by far the most significant single factor accounting for 53 fatalities since 2007, compared with 77 fatalities over the period 2000 to October 2007. The second most common type of event was also the same with 22 fatalities arising from persons overboard since 2007; this compares to 21 fatalities over the previous seven years. In both reports, very few fatalities were recorded as either ‘collision’ or ‘head injury’
**Total recreational boating fatalities 2007-2013 by Type of event**

<table>
<thead>
<tr>
<th>Type of Event</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capsize</td>
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</tr>
<tr>
<td>Collision</td>
<td>7</td>
</tr>
<tr>
<td>Entrapment</td>
<td>3</td>
</tr>
<tr>
<td>Grounding</td>
<td>7</td>
</tr>
<tr>
<td>Head Injury</td>
<td>1</td>
</tr>
<tr>
<td>Person Overboard</td>
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</tr>
<tr>
<td>Sinking</td>
<td>11</td>
</tr>
<tr>
<td>Structural Failure</td>
<td>1</td>
</tr>
<tr>
<td>Not Specified</td>
<td>10</td>
</tr>
</tbody>
</table>

*Note: More than one of these types of events may have occurred, but only the end result is counted. For example, following a mechanical failure, a vessel may have sunk – this is recorded in these numbers as a sinking.*

**Type of vessel**

While types of vessel are shown below, some caution needs to be exercised, as this figure condenses the 31 categories in the MNZ database, down to nine, and in relation to 16 fatalities, the type of vessel is not specified. Dinghies, both motorised and non-motorised, account for the largest number of casualties, followed by power boats, and kayaks/canoes.
Limited data
No sufficiently complete set of MNZ data for the period 2007-2013 was identified in relation to gender, ethnicity, wearing a PFD, carrying a PDF, carrying other safety equipment, event location, or length of vessel. However, information on some of these matters has usually been included in occasional MNZ fatality reports to the Forum, although the precise format of these reports has tended to vary somewhat. However, a more comprehensive report on fatality data held by MNZ for the period 1 January 2007 to 9 February 2012, was presented to the Forum in early 2012. This report indicated that 84 of the 91 fatalities over this period were male, while seven were female. and also stated that 28 of those who died were recorded in the MNZ database as not wearing a PFD, although the actual figure is likely to be much higher (for example, an earlier Forum report from January 007 to November 2009 expressed the view that, over this period of almost three years, 25 of the 34 fatalities would almost certainly have been avoided if lifejackets were worn).
Event location applies to where the fatal incident took place. No event location information has been categorised for 31 of the 115 fatalities; there are also multiple categories which also limits the counts that can meaningfully be done. Of the remaining 84 fatalities, 38 concerned incidents in either rivers (including one river mouth) or lakes. Of the 46 fatal incidents that were categorised as having taken place at sea, 16 of these occurred in harbours. Despite the limits on counts that can be done, the impression from looking at the data overall is that the vast majority of people who died, did so as a result of an incident that took place very close to land.

In terms of the length of vessels, this information does not appear to have been categorised in the MNZ database in relation to 68 of the 115 fatalities. What can be said is that 19 of the fatalities were vessels of 6m or longer, 20 were vessels between 4m and 5.99m and eight were vessels under 4m. However, the data would suggest that the vast majority of the 68 instances in which the vessel length was not provided, although not all, were either un-powered paddle craft or smaller powered boats.

2011/12 AND 2012/13 FATALITY REVIEW PANEL EXERCISE
The fatality review panel exercise undertaken for the 2007 review examined all recreational boating fatalities from 2000 to October 2006 and assessed (using a 0 to 10 scale) the likelihood in relationship to each incident of:

- Lifejacket effectiveness preventing a boating fatality
- Weather/water conditions contributing to a fatality
- Effective communication preventing a boating fatality
- Fitted level floatation preventing a boating fatality.
For the current review it was determined that, rather than focusing solely on the four 2007 factors above, a broader and more detailed approach should be taken with a smaller number of cases. Importantly, this involved looking for patterns in the data rather than using predetermined categories. A four-person panel was convened for a day to discuss the 32 fatalities that occurred over the course of the 2011/12 and 2012/13 financial years. In one sense, this was a sample of the fatalities over the course of the last seven years. However, as these were all recent fatalities, this approach would also provide us with a better understanding of the impact of accumulative changes since the time of the last review.

In terms of these 32 cases, some more general information is included in Appendix 9. However, in summary:

- The 32 fatalities included two children under the age of 10.
- 15-24 years was the age-band with the single most fatalities.
- In comparison to other ethnic groups, Pacific Peoples, and to a lesser extent Māori, were over-represented.
- Geographically, Otago and Southland had a higher than average per capita incidence of fatalities and accounted for eight of the thirty two deaths. Conversely, in Auckland the per capita level of incidence was lower than average.
- After January, the next most common month for deaths was not November, December, February or March, but August – in fact the number of deaths in August was the same as for November, December, February and March combined.
- Most fatalities were in smaller powerboats.
- Half of the fatalities were due to capsize.
The following table shows the results of the analysis from the Fatality Review Panel process for 28 of the 32 cases (four were deemed unable to be assessed).

<table>
<thead>
<tr>
<th>Factors that may have prevented a fatality</th>
<th>Frequency Ranking</th>
<th>Decision Point</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carrying and wearing an appropriately fitting lifejacket in good condition/serviced</td>
<td>1</td>
<td>Before trip</td>
</tr>
<tr>
<td>Skipper had on-water behavioural competence in the recreational boating safety fundamentals in terms of exercising skipper responsibilities, decision-making and situational awareness</td>
<td>2</td>
<td>Before trip</td>
</tr>
<tr>
<td>Vessel was seaworthy – less than approximately 40 years old, in an adequate condition, stable and not overly modified or incorrectly rigged</td>
<td>3</td>
<td>Before trip</td>
</tr>
<tr>
<td>Communications equipment was carried and accessible</td>
<td>4</td>
<td>Before trip</td>
</tr>
<tr>
<td>Vessel was appropriate for the activity and waters proposed</td>
<td>5</td>
<td>Before trip</td>
</tr>
<tr>
<td>Skipper had knowledge, through education or experience, of the recreational boating safety fundamentals</td>
<td>6</td>
<td>Before trip</td>
</tr>
<tr>
<td>Skipper and any passengers were appropriately dressed for the conditions</td>
<td>7</td>
<td>Before trip</td>
</tr>
<tr>
<td>Skipper identified and mitigated the main trip risks</td>
<td>8</td>
<td>Before trip</td>
</tr>
<tr>
<td>Skipper lodged trip report/voyage plan with authorities or family/friends</td>
<td>8</td>
<td>Before trip</td>
</tr>
<tr>
<td>Skipper didn’t overload vessel</td>
<td>8</td>
<td>Before trip</td>
</tr>
<tr>
<td>Skipper did a weather check before trip and got updates</td>
<td>11</td>
<td>Before trip</td>
</tr>
<tr>
<td>Skipper recognised that safety risks are not limited to going offshore – being close to land in sheltered inshore waters, harbours and lakes also has risks</td>
<td>12</td>
<td>Before trip</td>
</tr>
<tr>
<td>Skipper or passengers did not take alcohol or drugs</td>
<td>12</td>
<td>Before trip and during trip</td>
</tr>
<tr>
<td>Skipper was aware of the effects on the body of cold water</td>
<td>14</td>
<td>Before trip</td>
</tr>
<tr>
<td>Vessel was incapable of sinking</td>
<td>15</td>
<td>Before trip</td>
</tr>
<tr>
<td>Skipper was aware of local boating conditions</td>
<td>16</td>
<td>Before trip</td>
</tr>
<tr>
<td>Skipper obeyed navigational ‘rules of the road’</td>
<td>16</td>
<td>During trip</td>
</tr>
<tr>
<td>Victims were (stronger) swimmers</td>
<td>18</td>
<td>Before trip</td>
</tr>
</tbody>
</table>

As can be seen, *carrying and wearing an appropriately fitting lifejacket in good condition/serviced*, as would be expected, appears with the highest frequently and does so with a significant margin. Communications, alcohol and weather also appear and are ranked by frequency as 4\(^{th}\), 12\(^{th}\) and 13\(^{th}\) (and alcohol and drugs at 17\(^{th}\)). However, several of the top factors relate to vessels (whether seaworthy, fit for purpose/activity and overloading are ranked 3\(^{rd}\), 5\(^{th}\) and 8\(^{th}\) equal, as well as skipper knowledge and competence, which are ranked 6\(^{th}\) and 2\(^{nd}\) respectively. The need for clothing that was appropriate for the conditions (7\(^{th}\)) and for trip plans (8\(^{th}\) equal), also featured very prominently.
It does need to be emphasised that the above is based on only 28 cases and that there may have been some duplication. However, the approach taken here, and the Swiss Cheese Model that underpins it, does suggest that a much broader range of factors than is usually the case, need to be considered when examining how fatalities may have been prevented.

As a separate piece of work, some analysis was also undertaken on the similarities and differences in the circumstances around these 28 fatalities. Almost all of the individuals fell into one of the following three groups. The *high experience high safety behaviour* group was the smallest, while the *low experience low safety behaviour* was the largest. The differences between these groups were somewhat marked.

*Figure 8: 2011/12 and 2012/13 fatalities grouped*

- **HIGH EXPERIENCE HIGH SAFETY BEHAVIOUR**
  - Skipper had years of experience and possibly training - Skipper had not taken alcohol or drugs
  - Complied with recreational boating laws - strong knowledge and commitment to safety
  - Took most safety measures but one or two mistakes or lapses
  - More fatalities amongst passengers rather than skippers and
  - Mainly yachts and larger powerboats - no issues about vessel condition.

- **HIGH EXPERIENCE LOW SAFETY BEHAVIOUR**
  - Older fatalities - Skipper had years of experience but probably no training
  - May or may not have complied with recreational boating laws - weak knowledge and commitment to safety - alcohol and drugs commonly feature
  - Often fishing with nets/craypots, or using vessel as transport - ongoing use of unsafe practices
  - Smaller vessels (unstable) and
  - Inshore, lakes and river.

- **LOW EXPERIENCE LOW SAFETY BEHAVIOUR**
  - Younger fatalities - usually inexperienced boat skippers or lone/inexperienced 'Kayakers'
  - Generally don't comply with (or necessarily know about) recreational boating laws - demonstrate weak knowledge and commitment to safety
  - Often take young children out – usually no PFDs - may be first time in a boat - multiple mistakes made and
  - Smaller vessels – poor conditions.
Chapter Six Summary of Findings

- There were fewer recreational fatalities during 2007-2013 than there were in 2000-2006. The largest single age group for fatalities by far was those aged 45-54. However, all age-bands had five or more fatalities, including six children under the age of 14. The geographical distribution across the country on a population basis, was very variable with, for example, Otago and Southland combined having more fatalities over the last seven years than Auckland.

- The more detailed analysis of all of the fatalities that occurred over 2011/12 and 2012/13 found that the largest single age-band was not 45-54 years but those aged 15-24, Pacific People’s and Māori were over-represented, and that fatalities occurred over the course of the whole year and not just the summer months.

- In terms of factors that may have prevented a fatality, while carrying and wearing a PFD as expected arose with the highest frequency, skipper having on-water behavioural competence, and vessel being seaworthy, ranked two and three respectively. The majority of those that died had little recreational boating experience and demonstrated a low level of safety behaviour.
CHAPTER SEVEN: OVERALL EFFECTIVENESS OF THE EXISTING NEW ZEALAND PLEASURE BOAT SAFETY STRATEGY

The 2007 review reported a significant reduction in the number of pleasure boat fatalities over the period 2000 to 2006 and stated the following:

New Zealand’s national pleasure boat strategy has led to a 50% reduction in recreational boating fatalities over the last 6 years despite increasing boat numbers. The strategy has used a combination of education and targeted legislation to tackle the key risk factors in recreational boating activities (National Pleasure Boat Safety Forum, 2008, p. 2).

From 1 January 2000 to 31 October 2006 there were 123 recorded recreational boating fatalities. This marked a significant reduction on previous years and there is a correlation between this reduction and the work of the NPBSG and member organisations. In terms of assessing the effectiveness of the strategy between 2007 and 2013, this part of the review report will discuss:

- change in the overall rate of recreational boating fatalities,
- current fatality levels compare favourably with other similar jurisdictions,
- whether overall fatality reduction targets were met,
- any reductions in fatalities amongst explicit or implicit strategy target groups, and
- changes in New Zealand’s recreational boating safety culture.

CHANGE IN THE OVERALL RATE OF RECREATIONAL BOATING FATALITIES
As previously discussed, there have been fewer recreational boating fatalities since 2007 than there were over the preceding seven years. While the reduction is not large (115 deaths as opposed to 124), this figure does need to be seen in the context of an increased population and the likelihood of an increased number of participants in recreational boating.
CURRENT FATALITY LEVELS MAY BE HIGHER THAN SOME OTHER SIMILAR JURISDICTIONS

In the opening words of the first of a series of reports to the New Zealand Injury Prevention Strategy Secretariat, researchers from the University of Otago Injury Prevention Research Unit, stated that “comparing injury [including fatality] rates from different countries can suggest priorities for research and intervention, and provide insights into the effectiveness of prevention strategies” (Connor, Langley, & Cryer, 2007, p. i). Identifying whether similar countries currently have higher or lower recreational boating fatality and serious injury levels than New Zealand’s, may assist in determining whether or not our efforts around the selection, design and implementation of particular interventions since 2007 and 1999 are having an overall positive effect. However, as Connor, Langley, & Cryer (2007) go on to discuss, there are some challenges associated with comparing datasets from different countries (which, as researchers, they frame as potential threats to validity).

Two fundamental pre-conditions for international data comparisons, that are often not fully met in relation to recreation boating safety, are that data on fatalities and serious injuries needs to be both complete and accurate. In terms of completeness, it can be seen in the following tables that no fatality data is presented for Australia for the years 2009 or 2010, or for the UK prior to 2009. Similarly, while the Canadian table uses fatality data from the Drowning Prevention Research Centre/Lifesaving Society, in an alternative widely used dataset for Canadian recreational boating fatalities, it was estimated that for the years 2006-2008, data was missing on 17% of cases, and for one small province, Prince Edward Island, this figure was cited as being as high as 50% (Transport Canada and Canadian Red Cross, 2011). These issues are further compounded with serious injuries, and indeed, no reliable international data on serious injuries is presented in this report. In terms of the accuracy of the data that is presented by different countries, this is also likely to vary considerably.
Aside from the preconditions of completeness and accuracy, issues of definitions and how data is recorded are also fundamental. For example, in relation to recreational boating fatalities and serious injuries, the terms, ‘recreational’, ‘boating’, ‘fatality’, ‘serious’ and ‘injury’ are all words that may be used differently across countries, states, provinces and territories and/or even by organisations within jurisdictions. Two significant issues are whether the use of the term fatality is limited to drownings, or whether it also includes hypothermia and trauma, and whether the term ‘recreational’ relates to the classification of the vessel or the activity being undertaken at the time. Other differences may relate to how heart attacks, homicides and suicides are classified, geographical jurisdiction issues and the extent to which some of the emergent water-based activities are classed as recreational vessels.

Once definitional issues have been addressed, adjustments could be made that took account of the differences in sizes, age and make-up of the population. Furthermore, in order to provide a basis for a comparison on the effectiveness of interventions between countries, some consideration can then be given to risk exposure i.e. In terms of recreational boating, participation levels is one key determinant, although the extent to which this is accurately measured does seem to vary across countries; other determinants might include amount of time on the water and the characteristics of the waters, for example, issues around cold shock response, cold incapacitation, hypothermia, and circum-rescue collapse will be of more relevance in some countries, and parts of countries, than others. Furthermore, jurisdictions may publish their data in a variety of different formats that might include:

- Actual number of fatalities
- Fatalities adjusted for missing data
- Multi-year fatalities’ average
- Rolling multi-year fatalities’ average
- Fatalities as an expression of population
- Fatalities as an expression of registered vessels – often but not necessarily powered boats
- Fatalities as an expression of the estimated number of vessels
- Incomplete data on serious injuries
Over recent years, using a presentational format of fatalities per 100,000 registered vessels has become increasingly popular in a number of countries including Australia. However, if this was ever a useful internationally comparative measure (given the widely differing ways that it was applied in different countries), with the increased sales of kayaks and other non-powered vessels in other countries as well as in New Zealand, motor boats are not necessarily as useful a proxy for recreational boats as they perhaps once were.

Despite the above and the need to treat such comparative data cautiously, the following five graphs show the annual number of recreational boating fatalities as reported since 2000, where available, for the US, Canada, Australia, the UK and New Zealand. A table containing this data on a per capita basis is then presented, before a discussion on comparisons between each of these countries and New Zealand.
Figure 9: Recreation boating fatalities 2000-2013 in the US, Canada, Australia, UK and NZ

Sources and Notes
- NZ: Maritime New Zealand
- Canada: Drowning Prevention Research Centre/Life Saving Society
- UK: National Water Safety Forum’s Water Incident Database
The following table presents recreational boating fatalities on a per capita basis – population estimates for each year derived from the World Bank (2014) and Statistics New Zealand (2012).

<table>
<thead>
<tr>
<th>Year</th>
<th>US per 100,000 pop</th>
<th>CAN per 100,000 pop</th>
<th>AUS per 100,000 pop</th>
<th>UK per 100,000 pop</th>
<th>NZ per 100,000 pop</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>0.25</td>
<td>0.48</td>
<td>0.31</td>
<td>-</td>
<td>0.65</td>
</tr>
<tr>
<td>2001</td>
<td>0.24</td>
<td>0.46</td>
<td>0.24</td>
<td>-</td>
<td>0.52</td>
</tr>
<tr>
<td>2002</td>
<td>0.26</td>
<td>0.44</td>
<td>0.20</td>
<td>-</td>
<td>0.58</td>
</tr>
<tr>
<td>2003</td>
<td>0.24</td>
<td>0.43</td>
<td>0.21</td>
<td>-</td>
<td>0.45</td>
</tr>
<tr>
<td>2004</td>
<td>0.23</td>
<td>0.43</td>
<td>0.10</td>
<td>-</td>
<td>0.44</td>
</tr>
<tr>
<td>2005</td>
<td>0.24</td>
<td>0.39</td>
<td>0.12</td>
<td>-</td>
<td>0.31</td>
</tr>
<tr>
<td>2006</td>
<td>0.24</td>
<td>0.37</td>
<td>0.13</td>
<td>-</td>
<td>0.17</td>
</tr>
<tr>
<td>2007</td>
<td>0.23</td>
<td>0.34</td>
<td>0.24</td>
<td>-</td>
<td>0.19</td>
</tr>
<tr>
<td>2008</td>
<td>0.23</td>
<td>0.40</td>
<td>0.14</td>
<td>-</td>
<td>0.37</td>
</tr>
<tr>
<td>2009</td>
<td>0.24</td>
<td>0.37</td>
<td>-</td>
<td>0.06</td>
<td>0.56</td>
</tr>
<tr>
<td>2010</td>
<td>0.22</td>
<td>0.43</td>
<td>-</td>
<td>0.09</td>
<td>0.34</td>
</tr>
<tr>
<td>2011</td>
<td>0.24</td>
<td>-</td>
<td>0.14</td>
<td>0.08</td>
<td>0.43</td>
</tr>
<tr>
<td>2012</td>
<td>0.21</td>
<td>-</td>
<td>0.24</td>
<td>0.07</td>
<td>0.32</td>
</tr>
<tr>
<td>2013</td>
<td>-</td>
<td>-</td>
<td>0.25</td>
<td>-</td>
<td>0.45</td>
</tr>
<tr>
<td>Average</td>
<td>0.24</td>
<td>0.41</td>
<td>0.19</td>
<td>0.08</td>
<td>0.41</td>
</tr>
</tbody>
</table>

The US and comparisons with New Zealand
From the previous graphs overleaf, it can be seen, on the basis of the number of recreational boating fatalities, that levels within the US have been on a stable trajectory since the year 2000, with an annual range of 651-815. However, this ‘flattening off” perhaps needs to be seen in the context of the length of time that the Federal Government has been seeking to address recreational boating safety issues. Some of the US’s main recreational boating safety legislation has been in place since the Federal Boating Act in 1958, and arguably even longer with the Motorboat Act of 1910 (Rizzo & Hoedt, 2010). Furthermore, many other current Federal measures were first enacted in the 1970s and 1980s, for example Federal mandatory vessel manufacturing standards, Federal intoxicated boating laws and states establishing training and education programmes. Therefore, US reductions that were perhaps comparable to those New Zealand experienced in the early 2000s, had been realised some time before and so are not evident in the graph.
Within the context of there being 73,560,000 individual recreational boating participants in 2011, representing 23.8% of the population (USCG, n.d.), a per capita fatality rate range for the US of 0.21 to 0.25 since 2000 is very noteworthy. However in the US there is significant variation across states and territories. For example, in 2011 Iowa, Minnesota and New Hampshire fatality rates per 100,000 registered vessels were 1.7, 2.0 and 2.2 respectively, whereas the corresponding figures for Montana, Alaska and Hawaii were 23.3, 29.9 and 44.9 (USCG, 2012).

However, US fatality per capita rate, averaged since 2000, is only 0.24 (per 100,000 population) and is significantly lower than New Zealand’s average rate since 2000 of 0.41 (per 100,000 population). If it were assumed that NZ participation levels, including frequency and time on the water, were the same as in the US and other variables were the same and definitions were broadly similar, this would suggest that US efforts to minimize the number of recreational boating fatalities were significantly more effective than those in New Zealand. While MNZ has commissioned a number of research studies over recent years that have included questions on participation rates (Vance, 2014) the participation picture for New Zealand is not very clear. However, if we except the broad findings of the Rates of Participation in Recreational Boating survey (Research New Zealand, 2013) referred to previously, and take “own, or have the use of, some type of vessel for recreational boating purposes” (Research New Zealand, 2013, p.4). as a proxy for the USCG participation measure of going out on the water over the previous 12 months, the NZ participation figure of 24% (aged 18 years and over) for 2012 is almost identical to the last available USCG participation rate of 23.6% (aged 16 years and over). As such, comparing NZ per capita fatality rates with those of the US is reasonable, and this suggests that US recreational boating participants have, since 2000, been much less likely to die on the water than their New Zealand counterparts.
Canada and comparisons with New Zealand
The Canadian data is provided directly by the Canadian Drowning Prevention Research Centre/Life Saving Society. A comprehensive report was previously published from an alternative source by Transport Canada and the Canadian Red Cross (2011) with 18 years of recreational boating safety data, although this only covered the period up to 2008; more recent information does not appear to have been published by them. The Canadian Drowning Prevention Research Centre’s data is collected from Coronial reports (as was that from Transport Canada and the Canadian Red Cross). While fatality data is also available on the years 2011-13, it is interim data and largely based on media reports. Therefore, it has not been included here.

From the graphs, it is apparent the overall pattern in relation to the number of recreational boating fatalities in Canada since 2000 is similar to that of New Zealand, if a little flatter. In particular, the graphs for both show significant decreases over the earlier part of the 2000s, which have subsequently slowed (and in the context of 2007-2013 only, actually increased). In terms of per capita fatalities, the average since 2000 for both countries is the same at 0.41 per 100,000 of the population. However, the New Zealand recreational boating participation level of 24% (Research NZ, 2013) discussed above, is well below a Canadian estimate of 35% for 2012 (National Marine Manufacturers Association Canada, n.d.), a figure that has also been used by the Canadian Safety Boating Council (Murray, 2013). Therefore, this evidence suggests that, along with the same caveats that were mentioned in relation to the comparisons with the US, there is also evidence to suggest that, despite the colder waters in and around Canada, Canadian recreational boating participants have since 2000 been less likely to die on the water than their New Zealand counterparts.

Australia and comparisons with New Zealand
With the possible exceptions of Queensland and the Northern Territory, Australian states favour regulation as their primary recreational boating safety tool i.e. vessel registration (usually revenue generating), skipper licensing and alcohol limits. While incremental changes continue to be made, most of the current Australian systems have now been embedded for a number of years.
The Australian data, which has been extracted from the Australian Royal Life Saving Society’s annual fatality reports, needs to be treated with considerable caution for the purposes of international comparison at least, because of some of the definitions that they appear to use. It is understood that Australia’s National Marine Safety Committee, an intergovernmental forum under the auspices of the Council of Australian Governments (COAG), used to collate national data on recreational boating safety but that this function, and the existing data, was transferred to the Australian Maritime Safety Authority (AMSA). However, no data appears to have been published by the AMSA and no access to unpublished data has been secured. Some Australian data has been provided through the Australian New Zealand Safe Boating Education Group (ANZSBEG) although there were some issues with this data that precluded its use in this review.

The Australian Royal Life Saving Society’s numbers of recreational boating fatalities since 2000 follows a similar pattern to that of New Zealand and Canada. However, per capita, the average Australian fatality rate since 2000 of 0.19 (per 100,000 population) is even lower than the US and significantly lower than both Canada and New Zealand. However, a research study that identifies an Australian-wide figure on recreational participation levels has not been identified, and without that, it is difficult to determine the significance of the 0.19 figure. However, an estimated figure of 5m (of a population of 22.5m) was given at last year’s Marine 13 international conference which would suggest that participation levels are similar to New Zealand. This would seem to suggest that Australian recreational boating participants may have, since 2000, been much less likely to die on the water than their New Zealand counterparts. However, in view of the data issues (fatalities and participants), no firm conclusions can be made on this without further data and analysis.
UK and comparisons with New Zealand
The UK data that has been included here is from the UK: National Water Safety Forum’s WAter Incident Database (WAID). It has been published in this form only since 2009 and replaces annual drowning statistics compiled by the Royal Society for the Prevention of Accidents until 2008 (unavailable). Other recreational boating fatality statistics going back to 2000 are included in the annual report of the Marine Accident Investigation Branch (MAIB) – an independent part of the Department of Transport. However, reporting all recreational boating accidents is not a statutory requirement and this agency has a strong focus on commercial boats and ships. Marine Accident Investigation Branch of the Department of Transport. The WAID database is considered a more robust information source. However, with such limited data, and a 2012 participation level of only 5.8% (Arkenford, n.d.), this information has only been included for reference purposes.

Whether Overall Fatality Reduction Targets were Met
The 1999 Report review recommended a need for targets and measures of effectiveness to be developed as part of its recommendations in relation to both national coordination and education and public awareness. However, it appears as if this was never formally implemented and thus the Forum itself does not appear to have any targets to guide its work. Maritime New Zealand does however have national fatality reduction targets and some members have referred to these as being targets that are also shared with the Forum. It is these that are discussed below.
As well as discussing recreational boating fatality targets in their annual Statement of Intent documents, Maritime New Zealand reports against their targets in their annual reports as shown in the table below:

**Table 6: Maritime New Zealand annual report reporting against recreational boating fatality reduction targets**

<table>
<thead>
<tr>
<th>Period</th>
<th>Target</th>
<th>Measure</th>
<th>Reported</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007/08</td>
<td>25% reduction from a starting point of 0.03 [sic] fatalities/year [Target stated as being for 2006-10]</td>
<td>Fatalities per 100,000 pleasure boat owners</td>
<td>0.02 [sic] fatalities (actual number of fatalities not shown).</td>
</tr>
<tr>
<td>2008/09</td>
<td>Not stated</td>
<td>Number of actual fatalities</td>
<td>No figure provided although graph indicates 21 fatalities which is approximately double the previous year (report partially attributes increased fatalities to MNZ funding issues)</td>
</tr>
<tr>
<td>2009/10</td>
<td>25% reduction in all accidents, fatalities and serious injuries involving pleasure boats, based on a starting point of 0.03 fatalities per year</td>
<td>Fatalities per 100,000 operating hours [sic]</td>
<td>No figure provided although graph appears to show quarterly data point (i.e. not annual) between 1.2 and 1.6 per 100,000. Graph, and to some extent, text also infer that 2006-10 target of reducing fatalities per 100,000 pleasure boat owners 0.03[sic] by 25% was not met with graph suggesting that June quarter 2009/10 annual rate was almost twice that of the corresponding 2005/06 period</td>
</tr>
<tr>
<td>2010/11</td>
<td>25% reduction in fatalities</td>
<td>Fatalities per 100,000 pleasure boat owners</td>
<td>No per 100,000 vessels figure actually provided (although shown as13 fatalities compared with 20 in the previous year)</td>
</tr>
<tr>
<td>2011/12</td>
<td>A reduction in the number of recreational boating fatalities from 3 to 2.5 by 2015</td>
<td>Fatalities per 100,000 [pleasure] boat owners</td>
<td>3.3 fatalities (also shown as 16 fatalities against 16 the previous year)</td>
</tr>
<tr>
<td>2012/13</td>
<td>A reduction in the number of recreational boating fatalities from 3 to 2.5 by 2015</td>
<td>Fatalities per 100,000 pleasure boat owners based on estimate of MNZ commissioned research of 900,000 vessels (RNZ, 2013)</td>
<td>1.7 fatalities (also shown as 15 fatalities against 16 the previous year)</td>
</tr>
</tbody>
</table>
The current MNZ 2013-16 Statement of Intent sets a new target of achieving a 10 percent reduction in the number of target group fatalities by 30 June 2016, although at the time of publication, baseline measures were yet to be determined and in this instance ‘target group’ was not defined. For the first time MNZ also introduced a target for the carriage and use of appropriate safety equipment (as evidenced by boat ramp surveys) – a 10 percent increase by 30 June 2016.

From the annual reports and statement of intent documents, it is difficult to determine whether MNZ recreational boating fatality targets have, to date, been met. The reporting method, or more accurately, reporting methods, given the multiple changes across years, are complex. There is also an issue with the measures used. MNZ state in their 2012/13 annual report that the rate of fatalities (per 100,000 boats), prior to 2012/13 is difficult to determine due to insufficient information on vessel ownership in New Zealand. While the vessel estimates are only included in the most recent annual report, 900,000, it should be noted that the 2007 review includes a vessel number of only 269,131 (NPGSF, 2008). One of those figures is likely to have been inaccurate. In some years rolling three year averages are used, and although this is potentially a useful analytical and presentation device, this overall level of complexity tends to have the effect of obscuring rather than illuminating the intended meaning of the information.

**ANY REDUCTIONS IN FATALITIES AMONGST EXPLICIT OR IMPLICIT STRATEGY TARGET GROUPS**

The 2007 report makes numerous references to targets and targeting although in most instances this is in relation to key safety risks such as lifejackets, communications, the weather and alcohol, rather than particular subgroups of the population or boating community.
No fatality population profile information was presented in the 1999 report. However, as referred to previously, the Pleasure Boat Safety Advisory Group did quote from a research study which described the demographic profile of Auckland boaties as “male, New Zealand European, aged 30-49 years in the medium to high socio-economic bracket” (CM Research cited in PBSAG, 1999, p.19). The PBSAG (1999) report goes on to say that:

In the rest of New Zealand, the profile of boaties closely resembles that of all New Zealanders, although, compared to the general population, boaties are more likely to be:

- Living in the Northern half of the North Island
- In the higher socio-economic group;
- Married with school age children
- NZ Pakeha/European
- Have a household income exceeding $75,000
- Homeowners (rather than renting).

Younger boaties tended to act as crew or passengers, while analysis of the skipper tended to indicate a male, over 50 years, boat owner, belong to a boating club and going boating at least once a month (PBSAG, 1999, p.41).

While the above profiles perhaps suggests a greater degree of homogeneity amongst recreational boaties in the 1990s than was necessarily the case, a picture was presented that much of the boating community was male, middle aged, comparatively wealthy and NZ European.

Similarly, the 2007 report does not make any references to the Forum having any particular target population groups. However, mention is made to there being a target audience for MNZ’s safety awareness campaigns over the period 2003-2007, which was males aged 15-74 years. This report also presented new demographic analysis of 101 recreational boating fatalities between 1 July 1999 and 30 June 2004, which to some extent reinforced the 1999 profile in finding that “European males aged between 45 and 54 were the single largest demographic group in recreational fatalities” (NPBSF, 2008, p.36).
However, while there have been some exceptions since 2007, males between 35-54 or 45-54 do appear to have been primary targets of the Forum and MNZ recreational boating safety initiatives. To some extent this represents simple demographics as many boaters fall within this age band, although it is also understood that older males were also being targeted as they show most resistance to change. Therefore, as recently as October 2013, the Forum endorsed a Cross Agency Communications and Engagement Strategy (ideas shop, 2013) in which the first of the three “key end-user audience targets” was listed as males aged 35 to 55.

Analysis of the recreational boating fatalities since 2007 suggests mixed results. On the one hand, fatalities amongst the 35-44 age group, were amongst the lowest age bands. However, on the other hand, those aged 45-54 continued to be the single largest age group over the whole seven year period. Across all age groups, it appears as if the vast majority of those that died were males. However, the analysis that was undertaken to support the Fatality Review Panel on all fatalities during the last two fiscal years (2011/12 and 2012/13), suggests a somewhat different picture. While males aged 45-54 continue to feature as a significant group amongst these 32 recreational boating fatalities, they represent a relatively small minority of recreational boating fatalities overall, and even when combined with those aged 35-44, they collectively still only accounted for a third of those that died in 2012 and 2013.

Therefore, given that reducing fatalities amongst those aged 35-54 or 45-54 appears to have been an implicit, if not an explicit, target for both the Forum and MNZ, this provides evidence that the strategy has been more effective than just looking at the reduction in fatalities since 2007 overall would perhaps suggest.
Changes in New Zealand’s Recreational Boating Safety Culture Since 2007

Possible indicators of improvement

Several of the reviews’ international key informants talked about the importance of improving recreational boating safety culture through the optimum mix of regulation, enforcement and information etc. While a detailed examination of what recreational boating safety culture is or is not is beyond the scope of this review, the following are offered as some possible ways by which improvements in any such recreational boating safety culture might be measured:

- More vessel operators understand their legal responsibilities and/or understand them more fully
- More vessel operators comply with national laws and applicable bylaws and/or at least those that are deemed to be more important.
- More vessel operators take their responsibilities for themselves, their passengers and other boat operators seriously or more seriously.
- More vessel operators undertake training and/or more advanced training.
- More vessel operators undertake a risk assessment ahead of any trip.
- More vessel operators understand their own capabilities and those of their vessel.
- More vessels are operated safely or more safely.
- More vessels on the water are seaworthy or more seaworthy.
- More vessels on the water will float when swamped.
- Vessel operators are less likely to go out in bad weather.
- Vessel operators more likely to notify others of proposed trip.
- Operators are more likely to have a vessel that is suitable for the activity being undertaken.
- Overloading of vessel becomes less likely.
- Vessels are more likely to carry PFDs, and operator and passengers wear PFDs.
- More vessel operators ensure that allocated lifejackets fit passengers and in particular children.
- Vessel operators with inflatable lifejackets get them serviced in accordance with the manufacturer’s instructions.
- Vessel operators are more likely to carry safety equipment and/or better safety equipment beyond any legal minimum.
- Fewer vessel operators and passengers drink alcohol or drink less.
- More operators follow navigational rules or more of them.
- More people dress appropriately for the conditions.
- More people on vessels can swim or swim confidently.
- More accidents are reported.
- Increase in public expectations of vessel operators in relation to safety.

Some Forum members have suggested over the course of the current review, that anecdotally, there has been some improvement in New Zealand’s recreational boating safety culture over recent years. However in terms of the administrative data held or research commissioned by Forum member organisations that has been accessed as part of the current review, there is little evidence available to examine in relation to most of the above possible indicators. What evidence there is, is largely limited to lifejackets, communications equipment and public expectations as follows:

**Carrying of lifejackets**

Synthesis of research conducted in recreational boating (Vance, 2014) which was prepared to support the current review, examines seven research studies undertaken since 2006, which sought to address the carriage of lifejackets issue. As Vance (2014) points out, although all of these studies are self-report telephone questionnaires, they have been undertaken by different companies and use different questions, means of recruitment and sampling methods; two of the studies use a non-probability sampling method and therefore cannot be generalised to the whole recreational boating population. While these studies might collectively point to a marginal increase in carriage rates over the period since the time of the last review, in view of the methodological issues raised above, such a conclusion cannot be confidently drawn.
More positively, from the 2012 boat ramp survey, the carriage of lifejackets rate was found to be 99% which was up on 2011 when it was 93%. The boat ramp survey is something of a hybrid in that it involves elements of both self-report and observation and as such has certain advantages and disadvantages and cannot really be generalised to all recreational boaters. However, this survey is large and has been running, be it with some methodological changes, for a number of years, and so the 2012 finding of a 99% carriage rate is certainly very encouraging. However, less encouraging is the small-scale Personal Flotation Device Fit on-water study (Waitako Regional Council, 2013) carried out last year in Raglan, the Coromandel and Karapiro, which found that 27 (14%) of skippers were issued with a notice of breach for not carrying enough PFDs for the number of passengers aboard their vessel. While not generalisable to the whole country (or strictly speaking even the Waikato), this does suggest the possibility that self-reported and actual behaviour may differ.

**Wearing of lifejackets**

Synthesis of research conducted in recreational boating (Vance, 2014) also discusses the wearing of lifejackets although only three of the eight previously referred to (and more recent) studies appear to have included questions on the wearing of lifejackets (including the two studies that used a non-probability sampling method). While Vance (2014) states that it is difficult to derive any meaningful conclusions from these three self-reported telephone studies, in response to a question of whether a lifejacket is worn every time, the findings range from 51% to 70%. While these rates actually seem quite high, evidence from the US (Mangione, Chow & Nguyen, 2012) and to a lesser extent France (Les Sauveteurs en Mer in France, 2013), suggests that lifejacket wear-rates are over-reported in self-report telephone surveys and appear to be a poor means of obtaining national estimates on actual PFD use on the water. In relation to addressing this particular question, observational surveys are now increasingly being used. Last year’s small Waikato study (Waitako Regional Council, 2013) referred to above, found that lifejackets were worn by all of those on board for 40% of the vessels that were approached (another 23% of vessels had some people wearing PFDs), although positively this was still significantly higher than the recent US 12 year average wear rate of 21.7% (Mangione, Chow & Nguyen, 2012). However, more worryingly, in terms of the more central focus of the Waikato study, 252 (73%) of the children and 51 (12%) adults, when asked to do so, put on an inappropriately sized PFD (Waitako Regional Council, 2013).
Carrying communications and safety equipment
The seven national research studies previously discussed in relation to lifejackets also included questions on the carriage of communications and safety equipment. Excluding the two that used non-representative sampling, Synthesis of research conducted in recreational boating (Vance, 2014) finds some significant changes over recent years. While some of the same methodological issues arise here as they do for lifejackets, the self-reported carriage of cell phones and beacons has increased significantly. However, there appears to have been little or no increase in the use of either marine radios or flares.

Checking marine weather forecasts
Six of the seven national research studies previously discussed including a question on whether the marine forecast were checked. Excluding the two studies that used non-representative sampling, Synthesis of research conducted in recreational boating (Vance, 2014) finds that self-reported rates have remained consistently within the range of 60-69% and have shown only a marginal increase.

Positive change in recreational boating culture?
In terms of whether New Zealand’s recreational boating safety culture has improved since 2007, despite a number of research studies on some aspects of this, it is difficult to reach many firm conclusions on this although some positive changes are apparent. There do seem to have been improvements in lifejacket carriage and wear rates. More people also carrying cellphones on vessels, and, while this might be expected, more people are also carrying beacons. However, there appears to have been little change in the carriage of other safety equipment and people appear to be no more likely to check the marine weather forecast than in 2007. Only one New Zealand study has explored the issue of alcohol since 2007 so no conclusions can be drawn. There is some anecdotal evidence to support the view that individual boaties are more safety conscious than they were seven years ago, and many people are accessing the various NZ recreational boating safety websites. However, this may be being offset by more new and inexperienced individuals who are not necessarily accessing education and training.
Chapter Seven Summary of Findings

- There have been fewer recreational boating fatalities since 2007 than there were over the preceding seven years.
- Since 2007 those aged 35-44 and 45-54 have at times been targeted by the Forum and MNZ, and there has been a notable reduction in fatalities amongst one of these groups (those aged 35-44).
- There is evidence that there have been some positive changes in New Zealand’s recreational boating safety culture since 2007.
- The New Zealand recreational boating fatality rate per capita still appears to be up to twice as high as those found in both Australia and the US.
- It is difficult to determine whether MNZ’s own recreational boating fatality targets have to date been met.
CHAPTER EIGHT: DISCUSSION AND RECOMMENDATIONS

JURISDICTIONAL COORDINATION, PLANNING AND THE OPERATION OF THE FORUM

Since New Zealand has had a national multi-agency planning structure for recreational boating in place since 2000, in that respect it compares favourably with most similar jurisdictions. Encompassing both the marine and non-marine environment also gives it an advantage over some other countries, as it can consider safety issues in relation to all recreational boaties. While there is inevitably tension between organisations in relation to their different roles and functions, Forum members report that the Forum works reasonably well, although there seems to be something of a consensus that it now needs to go to the next level.

One weakness of the current approach is that the 2007 Strategy document is perhaps better seen as a review with recommendations, than a strategy that is within the control of the Forum. While there was discussion about developing an accompanying implementation plan, this doesn’t appear to have been undertaken. Another weakness is that while there appears to have been more coordination between agencies at the national level, at the regional level there has been something of a proliferation of bylaws or proposed bylaws on a wide range of issues including carriage of safety equipment, alcohol, power boat operator minimum age, registration of PWC users and, of course, the wearing of PFDs. While regional and unitary councils helpfully often use identical language in their bylaws, there is a significant risk of fragmentation which may potentially limit the effectiveness of some of the Forum’s current activities in relation to training, awareness raising and information. If the Forum’s strong national focus on legislative issues is going to shift to a more regional one in the form of developing and enforcing bylaws, then much of the work that the Forum currently undertakes or oversees, may need to be radically re-thought. This issue also links to the broader role of the Forum, whether it sees itself taking a stronger advocacy role in relation to recreational boating safety and if so, whether the model that has been in place since 2000 in which the Forum is convened and chaired by MNZ, remains the most appropriate one.
It is recommended that:

1. MNZ and the Forum re-calibrate their approaches to recreational boating safety and more fully consider the safety of, for example, those who use lakes and rivers, kayakers and other paddle craft users, women, children and young people, the poor, and the inexperienced. In doing so, MNZ and the Forum reaffirm that boaties are not one homogeneous group but are instead made up of a number of subgroups with their own risk profiles and issues. As well as MNZ and Forum programmes and activities, this may also have some implications for Forum membership.

2. MNZ and the Forum give consideration to how they are going to plan and coordinate recreational boating safety activities over the next five years. In particular, consideration should be given to largely devoting the afternoons of the biannual meeting to the two existing subgroups – along with some new time-limited working on, for example, training and enforcement. Consideration should also be given to the establishment of a vice chairperson role, from outside of MNZ, and building on the current national secretary role, or a viable alternative, to provide more coordination of, and support to, Forum members and ongoing activities.

3. MNZ and the Forum reflect on whether the Forum should strengthen its advocacy role and, if so, explore the implications for MNZ and other government agency members.

4. the current Forum Terms of Reference (ToR), written in 2000, be updated to include an explicit statement that the primary purpose of the Forum is for member agencies to work collaboratively, both nationally and regionally, to reduce New Zealand’s pleasure boat fatalities and injuries.

5. in going to the next level, the Forum’s 2014-2019 Strategy needs to build on agreed policy positions and clearly articulate how the Forum and its member organisations are going to contribute individually and collaboratively to strengthening New Zealand’s recreational boating culture, and reducing fatalities and serious injuries, and provide the rationale for targeting particular population groups. In doing so, the Forum should utilise all of the ‘levers’ at its disposal, and, in relation to each of these, determine whether to: lead, model, inspire, engage, teach, inform, assist, encourage, persuade, incentivise, subsidise, facilitate or compel. The new Strategy should also be a stand-alone document and explicitly include or exclude existing positions and commitments from the 2007 and 1999 reports, and Forum ToR.
REGULATION
This review endorses the Forum’s existing position on the compulsory wearing of PFDs on vessels under 6m. However, an agreed position in of itself will not save lives. It is suggested that the Forum and MNZ need to either find a way through or around the current impasse on the compulsory wearing of PFSs nationally, and/or consider developing alternative proposals as found to some extent in other countries. Although these may be more costly, and in all likelihood less efficient, they have the potential to have a similar effect, for example building on the 2007 recommendation in relation to retrofitting level floatation in all existing boats, new funding for the establishment of additional enforcement staff roles, or substantially increasing the advertising budget for awareness raising. Some of the following issues are discussed in more detail elsewhere in the report. Comments in this section will therefore be kept brief.

In terms of regulating recreational boating, regional and unitary council bylaws to some extent offer an alternative to nationwide Acts of Parliament, and it may be that more councils adopt similar measures. However, by their very nature, regional and unitary bylaws are not necessarily developed with a country-wide picture in sight. Therefore, there can be very significant variation across authorities; for example, the draft proposals for Auckland are particularly comprehensive, whereas in some other authorities, there are no bylaws at all. Extensive and variable bylaws may also limit the effectives of national awareness raising, public information and training initiatives. There is a risk of fragmentation.

While vessel registration in Australia is, perhaps a little unfairly, seen as more of a budget-raising initiative than a safety one, in North America vessel registration is either low cost or no cost. One possible way of strengthening the safety focus and providing more of a tangible benefit for boaties, might be to link the vessel registration to an existing or new EPIRB, PLB or VHF radio code, although the costs of that may be prohibitive.

Six children under the age of 15 have died in recreational boating accidents since 2007. While no New Zealand study has been identified that includes information on the number of child participants in recreational boating, according to the USCG (n.d.), in the US in 2011 there were 15,236,000 aged 15 years or younger who participated in recreational boating over the course of the year, which represents 24.7% of the child population.
Most western jurisdictions have prescribed alcohol limits or tests for recreational boaters; in the US alcohol measures have now been in place for over 25 years. However, in the recreational maritime sector in New Zealand there is no prescribed allowable maximum level for alcohol or drugs for skippers, although under section 65 of the Maritime Transport Act, operators of pleasure craft must not operate vessels so as to cause unnecessary risk or danger to any person, or property. International research on the risks of drinking while boating is compelling and there is some evidence to suggest that alcohol may impair the ability to operate a vessel even more than it does a car. In some other jurisdictions, for example Canada, whether the skipper or passengers can drink alcohol will depend on the facilities that they have available on the boat.

Similarly most jurisdictions have mandatory skipper licensing/education/proof of competency systems, including 49 of the US states. However, such arrangements vary considerably and often have significant exemptions or long lead-in times which in some instances last several decades.

It is recommended that:

1. the Forum includes in the 2014 strategy its current (or revised) positions on: the mandatory wearing of PFDs on vessels under 6m (unless the skipper deems that it is not necessary), the mandatory wearing of PFDs for children, and alcohol and drugs.
2. MNZ undertake further policy work on the wearing of PFDs in vessels under 6 metres, as well as further policy work on the risk profile of children and young people and any particular safety needs that they may have. In relation to both PFDs and children, consideration should be given as to whether the future regulatory framework for recreational boating in New Zealand is to be primarily a national one in relation to Acts of Parliament, or a regional one in terms of the further development of bylaws.
3. MNZ undertake policy work on the possible introduction of a mandatory recreational boating skipper licensing/education/proof of competency scheme, along with any viable alternatives.
Navigational Safety
Navigational safety did not emerge as a problem in either 1999 or 2007 and the same can be said for this current review. However, the new Maritime Transport Amendment Act 2013, and the fact that several Forum members, including MNZ, are members of the Navigation Safety Special Interest Group, provides a timely opportunity to look at further strengthening collaboration between and across the two groups.

Enforcement
Despite this apparent increased focus on recreational boating enforcement amongst some regional and unitary councils since the time of the 2007 review, overall the level and nature of enforcement activity is not a strong feature of the Forum’s strategic approach. In particular it would be beneficial to examine how MNZ, the police and councils respond to more serious breaches of law. While a US-type approach to recreational boating enforcement is unlikely to ever feature as a strong component of the New Zealand way, there does appear to be room to strengthen a more nationally coherent approach towards enforcement. There is also scope to more fully explore the potential of enforcement activity to make a greater contribution to preventing fatalities through increased supporting of, and alignment with, existing and any future legislation.

1. MNZ and regional and unitary authorities review their current respective approaches to recreational boating enforcement and seek to jointly identify, examine and address any apparent gaps in the enforcement or regulation.

Safety Awareness Campaigns
Awareness raising campaigns through the use of TV commercials and related media, has been a central component of MNZ and the Forum’s recreational boating safety activity since 2007. It presumably also accounts for a significant proportion of the available expenditure. While no work appears to have undertaken in relation to alcohol, the wearing of lifejackets has had a particularly strong focus.
Such campaigns have an important role to play in any recreational boating safety strategy. As would be expected, they are particularly important, and appear to be more widely used, in countries with a high proportion of boaties but a comparatively light regulatory framework. Annual campaigns, as undertaken by MNZ, are probably more effective than sporadic ones. TV campaigns also have the advantage of reaching families as well as boaties directly.

However, given the comparatively high level of fatalities over the last 7 years amongst those under 35 and over 55, the current practice of targeting awareness raising through some of the campaigns at males aged 35 to 54 may no longer be appropriate. Similarly, as the nature of the recreational boating community continues to evolve, framing all boaties as a single homogeneous group (or indeed even thinking of them all as boaties), may be outdated, and so also has implications for how awareness raising campaigns are designed and targeted.

The move into sponsorship presents as a positive development and may enable MNZ and the Forum to cost-effectively raise awareness amongst more specific subgroups of the population. These and other forms of safety awareness raising, and public information, have been clearly outlined in the Communications’ subgroups very valuable Cross Agency Communications and Engagement Strategy (ideas shop, 2013) which has been endorsed by the Forum. It is anticipated that the ongoing work of the Communications subgroup will lead to a further strengthening of collaborative efforts in this area.

It is recommended that:

1. the current approach to awareness raising campaigns (ideas shop, 2013), while endorsed, nonetheless takes into account the changes in recreational boating over recent years. In doing so, MNZ should distinguish more clearly between population targets for particular awareness raising campaigns, and any population targets for the strategy as a whole.
EDUCATION AND TRAINING COURSES
Given that recreational boating is one of the least regulated forms of transport (other forms of NZ transport are described in Appendix 5), the need for training takes on particular significance (Virk & Pikora, 2010). However, it is difficult to make an evaluative judgement on whether nationally there are currently enough recreational boating (safety) training courses available. In 2008, a prominent recreational boating figure estimated that about 25,000 to 30,000 new people get into boating every year (New Zealand Herald, 2008). That is ideally 25,000 to 30,000 new people who we would like to see enrolling in at least one course during their first year. However, no data has been identified on this issue. Similarly, at a national level it is not known whether the current course locations, topics, length and delivery methods, are sufficient for our needs. To what extent are the needs of those in smaller centres and rural areas being met? Are there any significant gaps in provision that the current business models are struggling to meet? In the absence of evaluation research, it is also difficult, as it is in other countries, to demonstrate effectiveness and determine the extent to which such courses have a positive impact on the recreational boating death and injury toll.

Despite the strong focus on training in the 1999 report and, be it perhaps to a lesser extent, the 2007 review, the need to get some training is not in itself a key Forum safety message. Training sometimes appears in contextual narrative and the strongest example of this is probably the WSNZ 4 rules for every trip which, as part of their rule on skipper responsibility, includes the statement “not sure of your ability? Get Educated!” (WSNZ, n.d.). In appearing to target safety messages aimed at experienced boaties about what they already know, rather than new inexperienced boaties, a major opportunity is being lost in relation to those who newly come to boating each year – potentially tens of thousands of people annually. In contrast, in the UK, training is the first of the Maritime & Coastguard Agency’s five safety messages for recreational boaties as well as the first of six RNLI tips for safe trips, and training is of course central to the licensing systems of most other jurisdictions.
Due to the size of the population and the popularity of recreational boating, much of the classroom and practical on-water training takes place in and around Auckland. However, both CBES and YNZ have their courses on offer throughout the country, and the continued development of home study and e-learning delivery options for theory-based learning is likely to extend their reach further. However, it is likely that training provision in some provinces is likely to be much more limited. Similarly, virtually all recreational boating safety training is delivered by maritime-orientated organisations. Here is some evidence to suggest that there has been a growth over recent years in non-maritime recreational boating, and, over the years 2011/12 and 2012/13, 12 of the 32 fatalities occurred on lakes and rivers. While that may or may not in itself be a problem, it does raise marketing and design challenges as to whether, and how, existing training organisations can reach out to non-maritime vessel operators and others who may not necessarily perceive themselves as boaties. CBES courses are delivered through some Community Education Centres, for example Rutherford College and Selwyn College in Auckland, and this particular delivery model may offer some useful opportunities for the future. However, while the CBES Day Skipper course, for example, does include some coverage of the different conditions and dangers when boating on lakes and rivers, new river and lake boaties may also need or want training courses that more specifically meet their needs. That said, CBES do regularly run courses in popular inland lake areas such as Queenstown, Wanaka, Taupo, Rotorua and Hamilton/Cambridge.

There has been a seven-fold increase in the number of courses on offer from CBES since the time of the original report (PBSAG, 1999); this is largely due to the addition/integration of RYA courses. However, compared with its enrolled student numbers of 10,000 (assumed to be adults) for the fiscal year 1998-99 year that was cited in the 1999 report, the number of adult students for the year 2012/13 at 9,134, is no higher. This, therefore, raises a question on the extent to which CBES course participant levels have, over the intervening years, kept pace with national increases in the numbers of vessels and boaties. However, the focus on schools is a significant development and indeed in 2012/13 CBES had more child than adult participants.
If the Forum is in fact going to be successful in “increasing the opportunities for training and education for pleasure boat owners, and the number of operators attending courses” (NPBSF, 2008, p. 11), and really does “endorse the need to reduce as much and 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” (NPBSF, 2008, p.6), some further training support, assistance and investment may be required.

It is recommended that:

1. MNZ and the Forum coordinate the development of a national recreational boating ‘safety training needs analysis’ exercise. As part of the identification and assessment of training needs, MNZ and the Forum should develop a means of collecting and analysing education and training information from (a) current and future course participants of CBES and other Forum education and training providers (b) participants in the surveys of MNZ and other Forum members and (c), future MNZ recreational boating fatality and serious injury investigation reports and analyses. The needs analysis should also include an audit of current education and training provision.

PUBLIC INFORMATION
While a detailed analysis of content has not been undertaken, on the face of it, the public information that we have on recreational boating safety appears to be comprehensive and quite similar to other jurisdictions, with a mix of printed and online books, leaflets and online videos. However, unlike Canada and the US, we do not have a single national recreational boating safety website that is supported, both in principal and practice, by key sector stakeholders. There is therefore no single ‘go to’ national safety resource for boaties, with the safety messages and information being spread across a wide range of different sites, be it with some degree of cooperation between some Forum members. The need for a new national recreational boating safety website was included in the report of the Forum’s communications subgroup which was endorsed by the wider Forum in October 2013.
Forum members appear to be working more collaboratively on their public information than was perhaps the case in the past, and the communications subgroup has perhaps allowed such approaches to be further strengthened. However, despite this, there are differences between the safety messages that different organisations are presenting to boating communities and the general public, and, while not major, such differences must dilute their collective effectiveness and the efforts of Forum members. Therefore, while the NZ Boating Safety Code (developed by NZSAR) promotes 5 simple rules to help you stay safe, WSNZ has 4 rules for every trip, and MNZ 4 key safety messages on their website and five on some of their other material (the latter includes skipper responsibility). For the future credibility of the Forum, it should be agreed that these should be consistent for future public information.

The establishment by MNZ of the Boat Safety in NZ YouTube channel seems to be a positive development. While some of the videos are showing as few as 200 or 300 hits, this initiative very clearly demonstrates that there are many boaties who will go to a short online recreational boating safety video to view content that they believe to be important to them. The challenge will be to keep creating new content, and building up the Boat Safety in NZ channel’s subscribers beyond the current 556, and get boaties to come back and view other videos too.

One other observation is that the publication Safe boating: An essential guide presents as an excellent resource. However, in an A5 format and with 45 pages, it is shorter than any other similar document identified in other jurisdictions, and is significantly shorter than most (although it is acknowledged that the video version is 2 hours long). The Boating Safety Code is a single page (although the short video version goes into much more detail). Other printed information tends to take the form of short leaflets or small adhesive labels that can be affixed to a vessel. Individually, there would have been sound decisions for the chosen format, style and language used for each of these publications and materials. However, taken together, and without much emphasis on the need for training, their comparative brevity risks serving to reinforce that recreational boating safety in New Zealand does not need to be taken that seriously because there is really not much to know. New and inexperienced boaters, and particularly those outside of the maritime boating community, may require more detailed public information.
It is recommended that:

1. the development of a national recreational boating safety website, as already proposed (ideas shop, 2013) and agreed by the Forum, be designed as New Zealand’s primary recreational boating safety website, in much the same way as SmartBoatie.ca is in Canada. While MNZ could coordinate the development, the website should be seen to be under the auspices of the Forum, rather than MNZ, or indeed Water Safety New Zealand (WSNZ), the New Zealand Search and Rescue (NZSAR) Council or Coastguard Boating Education Services (CBES).

2. Forum members should harmonise their core key safety messages so that they are not inconsistent.

**Boatie Assistance**

In spanning boatie assistance, education, enforcement and research (boat ramp survey), the role of the SBA is already quite broad. SBAs could potentially also make a very valuable contribution to the Forum and member agencies’ future efforts to strengthen engagement with the boating community or communities regionally and more locally. However, that would risk diluting the role further. Volunteers are a valuable, and indeed large, part of recreational boating safety systems in New Zealand, and any future changes in roles will have to be carefully explored with them.

**Community Engagement**

Both the 1999 report and the 2007 review, with some exceptions, presented the recreational boating community as a highly homogeneous group. This view of the typical boatie, and directing initiatives and activities towards him [*sic*], has had a strong impact on the work of the Forum and, in particular, it’s social marketing and training activities. However, the fatality review panel analysis, along with the recent Research New Zealand research study, suggests that if this ever was the case, it certainly no longer applies today.

The MNZ organisational restructuring, which means it now has 16 rather than two or three Maritime Officers with some involvement in recreational boating safety, also perhaps provides an opportunity for MNZ Maritime officers, WSNZ staff and Harbourmasters and Harbour Managers to look at how they can strengthen the profile of recreational boating at a regional or more local level, and engage with their communities in ways that were very difficult when recreational boating was the concern of only two or three individuals.
One area for possible regional collaboration might be in relation to the planning of an annual New Zealand Recreation Boating Safety Week. Whilst coordinated nationally, much of the focus would be through new or existing groups to instigate and plan regional and more local activities based on regional and unitary council boundaries. Nationally based organisations would be asked to, wherever possible, provide staff or volunteers for these regional groups. The week could also be used for regional and national announcements and launches.

Another possibility for greater regional collaboration might be the development of (more) safety information events for recreational boaties.

It is recommended that:

1. the Forum explore, with the Navigation Safety Special Interest Group, their interest in, and the feasibility of, the establishment of an annual New Zealand Recreational Boating Safety Awareness Week. If there is support for such a proposal, the Forum should establish a subgroup which includes appropriate representation from local authority representatives and other key agencies, to coordinate an annual New Zealand Recreational Boating Safety Awareness Week and support regional planning groups. Commencing in 2014, it is proposed that the week should coincide each year with Labour Day weekend. Over time, Forum members would be expected to align most of their individual and collective awareness raising activities with each other through such a New Zealand Recreational Boating Safety Awareness Week.

**VESSEL MANUFACTURING AND MAINTENANCE**
Unlike the US, Canada and all EU countries, New Zealand and Australia appear to have little in the way of mandatory construction standards for recreational boating vessels. There have now been agreed recommendations in place on developing voluntary industry standards for 15 years. From the Forum minutes, there seems to have been little progress, at least in the terms of the recommendations as originally expressed.
While there are no doubt some exceptions, looking at other western countries, an interesting, if not particularly surprising, pattern emerges. Most similar jurisdictions appear to have strong mandatory vessel construction standards or strong mandatory requirements on the wearing of lifejackets. Unusually, New Zealand has neither. The rationale, as confirmed by one international key informant, appears to be that if vessels are not going to sink and boaters can use them as a form of floatation, then the justification for strong mandatory requirements on the wearing of lifejackets is weaker. Conversely, if vessels are going to sink then the perceived need for the mandatory wearing of lifejackets is at all times stronger.

Given the falls in new motor boat sales over the course of the recession, the retrofitting level of floatation in existing pleasure boats has perhaps become more important. Furthermore, the fatality review process highlighted that several of the vessels involved were simply not seaworthy.

It is recommended that:

1. MNZ work with relevant Forum members to assess the extent to which the CPC programme meets the 2007 recommendations on “developing and implementing voluntary industry standards for vessels under 6m, with further research and development into retrofitting level flotation in existing pleasure boats” (NPBSF, 2008, p.11). Consideration should be given to whether, and if so what, further work needs to be undertaken in relation to both domestically built and imported boats, and the retrofitting of older vessels should be considered alongside any other proposals to improve the seaworthiness of older vessels.

SEARCH AND RESCUE
The current review raises no issues about the role, function or effectiveness of Search and Rescue and other emergency services, and so makes no recommendations on how these could be improved in relation to saving the lives of more recreational boaters.

ACCIDENT INVESTIGATION AND ANALYSIS
The investigation of fatalities is an important responsibility, and maritime officers, with their particular knowledge and skills, have an important role to play as part of the coronial inquiry process. MNZ, and indeed the Forum, is also reliant on maritime officers to investigate fatalities and other accidents so that all possible lessons can be learnt from each and every tragedy; short newspaper clippings or police information is not an appropriate substitute.
Similarly, analysis and reporting of this data is also important, yet the statistics that MNZ provide to the Forum, or otherwise releases in press releases, OIA requests and annual reports, are not always as accurate or as comprehensive as they should be. The investigation of accidents, incidents, and mishaps by the Director of MNZ is, of course, a power rather than a duty and thus at the discretion of the organisation. However, since March 2013, and arising from their structural reorganisation, MNZ has revised its operational position on the carrying out of investigations into fatalities and it is understood that investigations are now carried out in relation to all recreational boating fatalities.

That said, while the US and Canada, and increasingly the UK, have made significant investments in their incident data collection, analysis and reporting systems, it is asserted that MNZ probably gets at least some information on most, if not all, recreational boating fatalities in New Zealand. This is likely to be because:

- New Zealand has a small population.
- of the collaborative nature of most of the organisations and people that work in and around recreational boating safety.
- of the comparatively large number of local and regional newspapers in New Zealand resulting in stories being published on recreational boating fatalities (and this picked up by the media clipping service that MNZ purchases).
- of the mandatory requirement, that has been in place for some time, to report recreational boating fatalities and serious injuries in New Zealand.

However, despite both the Forum and the PBSAG having attached significant importance to the need for fatalities and serious injuries to be thoroughly investigated and analysed, the need for performance improvements in both of these areas is critical. The work that is beginning to be undertaken by the Forum’s data subgroup, along with MNZ’s 2013 operational decision to commence investigating all recreational boating fatalities, will contribute to this. Similarly it is understood that more resources are to be applied to this area by MNZ in the collection, analysis and management of their recreational boating fatality and serious injury data. Taken together, alongside the following recommendations, these steps should enable Forum members to be provided with a higher quality information that enables them to make better strategic decisions, and in particular be better able to adjust the strategy to respond to emerging changes, that are supported and informed by evidence.
It is recommended that:

1. MNZ and WSNZ build on the early work of the Forum’s data subgroup, and explore how they can use, and possibly better share, their limited resources to collaborate more on data collection, analysis and reporting on recreational boating fatalities and serious injuries. This should include giving consideration to sharing media clipping information, information from coroner’s reports, and Ministry of Health fatality and serious injury data. There may also be scope for harmonising some reporting categories, periodically reconciling data, and the joint publication of an annual report on finalised recreational boating statistical data on fatalities, injuries and incidents. In doing so, there may be opportunities to get leverage from the Forum’s very positive, if limited, public profile.

2. MNZ and WSNZ follow the Canadian model and jointly develop a survey instrument for the collection of recreational boating data. As well as assisting with the better collection, analysis and reporting of information, it is expected that this would, in time, also contribute towards a stronger focus on critical accident characteristics and risk factors in MNZ and police investigations, reports, coronial evidence, public information and media stories.

RESEARCH
The amount of research that has been undertaken in New Zealand on recreational boating, while undoubtedly small, is not insignificant. However, no studies have been identified over recent years that have been published in peer reviewed academic journals; this seems to have been a change as several were identified prior to 2007. Furthermore, while all research studies have their limitations, there are some particular issues with some of the New Zealand reports commissioned since 2007 in terms of whether the selected method was necessarily the best available for the high level research questions being asked, whether the sampling method or sample size was appropriate and/or whether the findings have subsequently been used out of context, for example, studies using non-representative convenience sampling being reported for monitoring purposes.
It is understood that there has been some discussion within MNZ about taking a more strategic approach towards MNZ and the Forum’s recreational boating research needs. This review and the following strategy provides an opportunity to make longer term decisions on research priorities and to take a first principles approach on how to most effectively meet research needs. While recognising the continuing value of landline telephone surveys undertaken by market research companies to cost-effectively address questions that are appropriate for this particular data collection method, there is currently a high degree of reliance on this single type of research.

More broadly, a first principles approach also points to a need to identify any important high level research questions that are currently unanswered and need to be addressed soon in order to influence the Forum’s strategy for the next 5 years, and/or need to be known at the time of the next review. Examples might include high level questions on serious injuries, lifejacket wear rates, the number of vessels in New Zealand, the condition of the boating stock, and similarities and differences amongst subgroups of recreational boating participants (including children). Once the high level questions were identified, determining how they could be most effectively addressed in relation to research design, methods and credibility, and then considering issues of collaboration, utilisation, budget and cost-effectiveness, could follow.

It is recommended that:

1. MNZ, as part of its strategic planning process, and aligned with research undertaken by other Forum members, develop a long-term integrated research strategy to support recreational boating safety.

2. Cost-effectiveness over the next five years be a central tenet of such a research strategy. As well as sustaining relationships with current research providers, consideration should also be given to (re-)building relationships with appropriate academic research centres, as well as evaluation research specialists. It may be that fewer studies are actually commissioned in the future, but, with an increased investment in design and method, these findings might be better utilised.
CONCLUSION

Recreational boating safety does not operate in a vacuum, and is as much about wider societal norms and expectations as it is about the levers that members of the Forum can collectively and individually pull. It is also often difficult to attribute the application of particular individual levers to reductions in recreational boating fatalities.

The overall conclusion of this review is that the Forum fulfils a useful function, has directly and indirectly implemented a wide range of initiatives, and has had a number of successes. There is some evidence that the Strategy has been effective. Furthermore, members have probably achieved more, collectively, in relationship to recreational boating safety than they could have done individually. However, despite significant reductions in the early 2000s, fatalities, and in all likelihood serious injuries as well, have levelled off. Furthermore, the nature of the recreational boating community is also changing and in some respects it is now more diverse and challenging to engage with. Building on the successes to date, and with some change in the mix of interventions being used, more fatalities could be prevented.
REFERENCES

Marico Marine Group (2007). Research to determine the regulatory approaches to recreational vessels within the EU, Canada, Australia, New Zealand and the USA. Retrieved from http://www.thegreenblue.org.uk/pdf/z%201216.%20Research%20to%20Determine%20the%20Regulatory%20Approaches%20to%20Recreational%20Vessels.pdf


APPENDICES
APPENDIX 1: NATIONAL RECREATIONAL BOATING SAFETY FORUM MEMBERSHIP ORGANISATIONS

The following organisations were members of the Forum at the time of the review:

- Accident Compensation Authority
- Auckland Council, Waikato Regional Council, Greater Wellington Regional Council and Queenstown-Lakes District Council (representing Councils with Harbourmaster functions)
- Coastguard Boating Education
- Kiwi Association of Sea Kayakers
- Māori/Waka Ama
- Maritime New Zealand
- Ministry of Transport
- New Zealand Coastguard
- New Zealand Jet Sports Boating Association
- New Zealand Maritime Police
- New Zealand Marine Industry Association
- New Zealand Search and Rescue Council
- New Zealand Underwater Association
- Recreational Fishers/Publications
- Surf Lifesaving New Zealand
- Water Safety New Zealand
- Yachting New Zealand
APPENDIX 2: REVIEW METHODOLOGY

The review was carried out over the summer of 2013/14. A number of data collection and analysis methods were used. As well as some informal discussions with steering group members and MNZ and WSNZ staff, the main methods used were as follows:

Qualitative key informant interviews
Six semi-structured telephone interviews were undertaken with eight international key informants from Australia, Canada, the US, the UK and France. As well as analysing the audio-recorded interviews for themes, information on specific measures were incorporated into the review report and some selected quotations were also used. Information for international key informants also appears in the appendix on international measures.

Abbreviated review of the international research literature
This is included as a separate document in the appendices. This was to be an abbreviated review and as such does not purport to be a full literature review. The approach taken has been to search key academic databases and to follow up and review articles and reports (and occasionally books) of possible relevance. Articles, chapters, books and reports selected for inclusion were those that generally appeared to have been: written by researchers with a national or international profile in relation to the topic of concern; well-designed research studies; and met other accepted quality standards, for example independently peer-reviewed or accepted for publication by a well-regarded international journal. A very limited selection of more significant government research reports has also been included.

Document analysis
As well as the 1999 and 2007 reports, numerous other key documents were reviewed in relation to both recreational boating in New Zealand and overseas jurisdictions. The New Zealand documents included Forum meeting minutes back to 2007 and minutes of the Navigation Safety Special Interest Group. Overseas documentation was largely in relation to the recreational boating safety systems in various other jurisdictions.
Administrative data
Existing MNZ administrative data on recreational boating fatalities from 2007 to 2013 was sourced, analysed, and some comparisons were made with data presented in the 2007 review report. Limited data cleansing was undertaken as part of this. Descriptive statistics were produced and from this some graphs and tables were generated.

Fatality Review Panel
Details of all recreational boating fatalities held by MNZ for the fiscal years 2011/12 and 2012/13 were examined over the course of a day by a five-person interagency panel; the panel members identified means by which each fatality might have been prevented. While this data is presented in a quantitative form, it was generated qualitatively i.e. on the basis of the case material and discussion, panel members came up with their own individual suggestions in their own words, rather than selecting from a pre-determined list. The data sheets of panel members were then analysed, with the findings presented in the main body of the report.

MNZ Research Synthesis
As part of the review process, MNZ also prepared a synthesis of recreational boating research commissioned by MNZ since 2007. While not attached as an appendix, this report is an important element of the review process.
APPENDIX 3: ABBREVIATED REVIEW OF OVERSEAS RESEARCH LITERATURE

Introduction

Internationally, the body of published research literature on recreational boating safety, whether theoretical or applied, is very small (Lapa, Turgut, & Turgut, 2012; O’Connor, 2001; O’Connor & O’Connor, 2005). Indeed, Cassell and Congiu (2005) have gone as far as to describe the availability of quality research on, for example, injuries as “sparse” (p. 1). With the exception of some research on the existence, or lack thereof, of recreational boat registration, inspection and skipper licensing systems in certain European Union member countries (Torralbo & Castells, 2012; 2013), no examples of international comparative research have been identified. Similarly, the published literature contains very few examples of evaluation research and the determination of the effectiveness of individual, or groups of, programmes (Cassell & Congiu, 2005). What published research there is (in English), is largely limited to the US, although over recent years a number of studies have come out of Australia, and perhaps to a lesser extent Canada.

Nonetheless, while the body of literature may be small, there are some areas in which researchers have made, and are making, a useful contribution to our knowledge of recreational boating safety and how current efforts internationally might be improved or enhanced. This abbreviated literature review will therefore address the following five areas:

- fatalities and their causes
- alcohol and drugs
- wearing lifejackets or Personal Floatation Devices (PFDs)
- boater training, and
- boating injuries.
This is an abbreviated review and as such does not purport to be a full literature review. The approach taken has been to search key academic databases and to follow up and review articles and reports (and occasionally books) of possible relevance. It was also an iterative process with some source references being followed up that did not appear in the original searches. Articles, chapters, books and reports selected for inclusion were those that generally appeared to have been: written by researchers with a national or international profile in relation to the topic of concern; well-designed research studies; and met other accepted quality standards, for example independently peer-reviewed or accepted for publication by a well-regarded international journal. A very limited selection of more significant government research reports has also been included.

Fatalities and their causes

Many people die in recreational boating accidents. According to O’Connor and O’Connor (2005), in Australia for example, boating is the cause of more fatalities and injuries requiring hospitalisation, than rail and air accidents combined. The picture in Australia suggests that on average about 80 people die per year (O’Connor, 2001). However in a later study, the number was put as 333 for the years 1992-1998 (O’Connor & O’Connor, 2005); what was interesting about the 2005 Australian study was that it involved “assessment of Coroner’s findings, review of witness statements, police reports, autopsy findings, search and rescue report, weather maps and reports; analysis of forensic and scientific data; assessment of photographic evidence; review of other related information” (p. 689).

In US research that examined the extent to which recreational boating fatalities and injuries were under-reported, Lawrence and Miller (2006) found that in the year 2002 there were 758 recreational boating fatalities. While this was a higher figure than the 750 individuals identified on the US national Boating Accident Report Database (BARD), it does suggest that fatality under-reporting is very low (under-reporting in relation to non-fatal accidents is discussed elsewhere in the report). Mangione, Chow, and Nguyen (2012), cite US Coast Guard statistics for the period 1999-2009 of 7,782 fatalities.
It should be noted that there are some individual studies that support the notion that recreational boating deaths have decreased over recent years or decades (O’Connor, 2001; US Corps of Engineers, 2012). However, in the absence of the identification of international comparative research on recreational boat fatalities, it is difficult to know whether this is a general trend or just specific to particular countries or jurisdictions.

It is perhaps also worth noting here that while the literature tends to measure fatalities on the basis of the number of individual deaths, there are other ways of presenting such data, for example, per capita or as an expression of registered vessels or exposure hours. The US Coast Guard also adjusts their fatality figures to take into account under-reporting (Lawrence & Miller, 2006).

In terms of the causes of recreational boating fatalities, in the US Mangione, Chow, and Nguyen (2012) found that 71% of fatalities were from drowning; the majority of these deaths were attributed to vessels capsizing and individuals falling overboard. In Australia, O’Connor and O’Connor (2005) reached a similar conclusions and found that “capsize was more likely to involve overloading or improper loading, hazardous wind or sea conditions, and dinghies” (p. 689).

Data from a review of boating fatalities in Australia from 1999 to 2004 found that drowning was the cause of death in 85% of cases (O’Connor, 2008). Other findings from this review included: only 12% of all people who died were wearing a PFD; the chances of surviving a boating accident was doubled by wearing a PFD; alcohol was the primary risk factor, and: alcohol and ill-health were the dominant initial contributing factors for a person falling overboard. The events resulting in a fatality were most often initiated by the capsize of the vessel (19%), a person falling overboard (19%) or swamping of the vessel (11%). However, when all significant events were considered (a maximum of five for each incident), at 33% a fall overboard was the most common event, with capsize accounting for 16% of all incident events. Dinghies were the most common type of vessel involved in fatal incidents and O’Connor points to their “inherent instability”.

119
Boating was the leading cause of drowning in Canada from 1991 to 2008. Recreational boating accounted for 85% of immersion deaths, including drowning and immersion hypothermia, and 91% of boating trauma deaths (Transport Canada & Canadian Red Cross Society, 2011). The most common type of incident for recreational fatalities, including both immersion and trauma deaths, was capsizing (39%), followed by falling overboard (25%), swamping (12%), and collision (8%); for recreational immersion deaths (i.e. drowning and hypothermia), the proportion due to capsizing in unpowered boats (57%), was almost double that in powerboats (31%), while the proportion due to falling overboard was less than half, 15% versus 32% respectively. Most immersion deaths occurred during fishing, powerboating and canoeing, while 76% of trauma deaths occurred during powerboating, including being towed by a powerboat, such as on a tube or water-skis. The most common risk factors identified by Transport Canada and the Canadian Red Cross Society (2011) included rough water (23% of immersion deaths), strong winds (19%), standing up in a craft (8.9%), overloading (8.5%), collisions (5%), and dangerous manoeuvres such as turning abruptly (4.4%). At least 5% of power-boaters died after they fell in and the boat continued on without them, possibly due to the lack of a dead man’s engine cut-off, or non-use even when present. There may be more than one risk factor per incident (Transport Canada & Canadian Red Cross Society, 2011).

Cassell and Congiu (2005), drawing on the findings of studies from the US, Canada and Australia, suggest that there are clear patterns of contributory factors that include human factors, environmental factors and boat and equipment factors:

- **Human factors**: operator/passenger gender, age, inexperience, swimming ability and risk-taking behaviours such as reckless operation of craft, boating alone, overloading boat, standing up in boat, failing to carry safety equipment, alcohol consumption, non-use of PFDs, and medical conditions, for example seizure disorders and heart conditions.
- **Environmental factors**: cold water, strong currents, hazardous wind and sea conditions, and remoteness of the location of many incidents that hampers/precludes prompt rescue.
- **Boat and equipment factors**: vessel stability and buoyancy and machinery and equipment failure (2005, p. 1).
The value of the above framework is two-fold:

Firstly, while the cause of any individual death or injury may well include more than one factor, more specific knowledge about causes enables national and local boating safety systems to correspondingly be refined and adjusted. For example, having reviewed the only three analytic studies that they were able to identify on this topic, Cassell and Congiu (2005) found that in relation to what they describe as ‘fatal submersion incidents’, they found that human factors were the greatest contribution to such deaths (60-63%), followed by environmental factors (23%) and then boat and equipment factors (9-13%). Indeed, the category of ‘human factors’ is so substantial that there may be value in separating this further into socio-demographic (for example, gender, age, ethnicity and socio-economic status) and behavioural factors (such as the consumption of alcohol, non-wearing of lifejackets and other risk-taking behaviours); Petridou and Klimentopoulou (2006) did this when grouping risk factors for drowning that are amenable to primary prevention interventions.

Secondly, the framework also has some parallels with the 3Es (engineering, education and enforcement or enactment) that is widely used in other areas of injury prevention. Therefore, as with the 3E mnemonic, considering a range of human (both socio-demographic and behavioural), environmental, and boat and equipment factors, also reinforces that reducing recreational boating accidents, fatalities and injuries, requires a range of optimal and integrated measures. Understanding these risk factors and the interplay between them can: assist in the identification of priority target groups for planned interventions; the development of key messages that aim to elicit a change in risky behaviours exhibited by target groups; the determination of particular risk environments in which types of activity could be considered in the intervention, and the identification of critical standards for boats and equipment that can ensure risks are moderated or prevented.
Such an approach also has parallels with the Swiss Cheese model of accident causation (Reason, 1997); this is also sometimes referred to as the cumulative act effect, and is used in risk analysis, risk management and injury prevention. As well as in the nuclear power industry, transport sector and healthcare, the model has also been employed in recreational boating, commercial boating and shipping (for example, Chauvin, 2011; Ghanem, 2009; King, n.d.). The model explores the causes of accidents, with a particular focus on the interactions between human systems and other systems, using the analogy of slices of Swiss cheese. Each slice of Swiss (Emmental) cheese represents one of four domains which Reason (1997) refers to as organisational influences, supervision, pre-conditions and specific acts. Individual weaknesses are characterised as holes in the cheese and represent the imperfections in individual safeguards. If and when the holes in the slices momentarily align, a ‘trajectory of accident opportunity’ is created so that a hazard passes through the holes in each of all the slices and thus leads to a failure.

Finally in this section on fatalities and their causes, it is important to make some reference to the body of research on drowning. Having knowledge and understanding of the work of Giesbrecht and colleague’s Canadian work (for example, Steinman & Giesbrecht, 2001) on the four phases of cold water immersion (Cold Shock Response, Cold Incapacitation, Hypothermia, and Circum-rescue Collapse), can help individuals improve their own chances of survival in the water, whilst also enabling search and rescue and other emergency personnel, to make more informed response decisions. Other work on surviving immersion in cold water has also been undertaken in the UK by Tipton and colleagues (for example, Brooks, Kozey, Reilly, Cheung, & Tipton, 2008). Such research also provides boaters with powerful, science-based evidence on how wearing a PFD could one day save their life.

**Alcohol**

While the link between alcohol and boating accidents has been recognised in the research literature for some time (see for example, Logan, Sacks, Branche, & Ryan, 1999; Lunetta, Penttilla, & Sarna, 1998), interest in this particular topic appears to have increased over recent years, with a number of studies being published on recreational boating accidents involving alcohol (and drugs) or, as it is now sometimes referred to, ‘boating under the influence’ (Lawrence & Miller, 2006).
Lawrence and Miller’s (2006) study analysed the US national Boating Accident Report Database (BARD) for the period 2002-2003, and suggested that 23% and 9% of fatal and non-fatal injuries respectively, were from accidents in which alcohol or drugs were a contributing factor; given that the database is based on self-reported accidents, the researchers suggest that these figures are likely to significantly underestimate the true situation. An Australian study (O’Connor & O’Connor, 2005) found that 28% of boating deaths involved use of alcohol in excess of 0.05g/100 ml; this, the researchers report, was similar to the contribution of alcohol to road deaths.

Canadian research shows that of all recreational boating victims from 1991 to 2008, alcohol was present or suspected in 46% of recreational boating immersion deaths for victims 15 years of age and older (including 26% with an alcohol level above the Canadian legal limit), with an additional 17% unknown. There was greater involvement with alcohol among powerboat victims (Transport Canada & Canadian Red Cross Society, 2011). This study also highlights that even small amounts of alcohol can impact on safety in and on the water. In a case-control study of recreational boating deaths (most due to drowning) from 1990 to 1998 (involving 221 people aged 18 years or older in Maryland and South Carolina), Smith and colleagues (2001) found that even those with low Blood Alcohol Content (BAC) have a relatively greater risk of dying, and this risk increased as BAC increased for anyone on a boat, not just the boat operator.

An early US survey of boaters with motor boats found that those who were most likely to operate their vessel whist under the influence of alcohol were males aged between 25 and 43, with a tertiary level education or higher. However, in contrast, a more recent Western Australian survey of boaters found that while the use of alcohol, as reported, was not prevalent, it was less amongst those who had undertaken a recreational boating safety course, or carried children (Miller & Pikora, 2008). On the other hand, some researchers have cautioned policymakers not to direct legislation and safety campaigns at boat operators alone (Howland et al., 1993; Smith et al., 2001). Howland and colleagues (1993) point to a number of boating guides that caution against boat operators drinking alcohol but do not mention the risks for passengers ‘under the influence’ (for example, losing balance and falling overboard, including when urinating).
Also, a survey of 3,042 US boaters found that the majority of respondents were on board boats owned by family or friends or were renting the boat (Bell, Howland, Mangione, & Senier, 2000). These authors also suggest that the individuals involved are not necessarily in control of safety issues, such as the availability of PFDs and the use of alcohol by the skipper of the boat, and that this means that this group may not be reached by interventions solely targeting boat owners. Similarly, Quan and colleagues (2007) suggest that the general public may be unaware of the strength of the link between the increased consumption of alcohol and drowning.

**Wearing lifejackets**

While there is actually little in the way of research evidence to support the efficacy of legislation on the carrying of lifejackets on vessels, either in terms of compliance or its effectiveness in preventing drownings (Quan, Bennet, & Branche, 2007), the view that the wearing of an appropriately fitted lifejacket can prevent some fatalities is supported by the research literature. However, with the notable exception of one study by the Australian National Marine Safety Committee discussed below, very few lifejacket research studies outside of the US have been published (Mangione, Chow, & Nguyen, 2012).

In the US, lifejacket wear rates, which now tend to be determined using observational as opposed to self-reported data collection methods, remain low. Mangione, Chow, and Nguyen (2012) reporting on the observational data of 480,000 US boaters over 12 years, found that the overall wear rate was 21.7%. However, within that average there were marked differences depending on age (youth 64.9% versus 13.4% for adults), and type of vessel (adults on houseboats 0.8% versus 96.3% of adults on Personal Watercraft); the researchers attributed much of the differences to the extent to which there was a mandatory requirement to wear lifejackets for children and/or for particular vessels or activities in individual states. Interestingly, with one or two exceptions in relation to some particular mandatory requirements, those rates did not change significantly over the course of the 12 years.
In Australia, a similar but much smaller and single-year observational baseline study was carried out in 2007 (NSW, SA, WA & QLD) by the National Marine Safety Committee and the Monash University Accident Research Centre (National Marine Safety Committee, 2006). This study found that average PFD wear rates were even lower than the American study discussed above, with wear rates ranging from 6% to 22% with similar variations depending on age, vessel type and activity. One additional finding from the Australian study was the strength of the relationship between skipper and passenger wear rates; if the skipper wore a PFD then the average passenger wear rate was 54% to 94% but if the skipper did not, the average passenger wear rate was much lower at 4% to 17% (National Marine Safety Committee, 2006).

In numerous US (and Australian and Canadian) studies, researchers have found that the vast majority of those who drown following a recreational boating accident were not wearing a lifejacket (for example, Connor & Connor, 2005; US Corps of Engineers, 2012). However, this is not the same as finding that all of these victims would have lived if they had been in a lifejacket; as well as other risk factors, there may also be protective factors at play too (Cassell & Congiu, 2005). In their matched cohort analysis of existing data on 1,597 boaters who drowned, Cummings, Mueller, and Quan (2011) suggest that perhaps one in two US drownings amongst recreational boaters may be preventable if lifejackets were worn by all. Nonetheless, even a 50% reduction would be a very significant change.

In terms of the reasons why so many boaters (and their passengers) choose not to wear lifejackets, the following quotation from a new Washington State US qualitative study of risk perception and behavioural factors (Quistberg, Bennett, Quan, & Ebel, in press) offers some insights:

Most boaters reported inconsistent use of lifejackets, using them only when conditions were very poor. Each described episodes of unpredictable boating risk which occurred despite favourable conditions. Most required younger child passengers to wear a lifejacket, but reported resistance among older children. Barriers to consistent lifejacket use included discomfort and the belief that lifejacket use indicated inexperience or poor swimming ability. Participants stated that laws requiring lifejacket use would change behaviour especially for children. The only demonstrated behaviour change amongst group members was associated with the use of inflatable life jacket devices. (p. 1)
However, while encouraged, internationally the mandatory requirement for adult recreational boaters to wear lifejackets remains rare (Mangione, Chow, & Nguyen, 2012). Even where it has been made mandatory for children, or particular vessels or activities, there is little research (yet) to indicate whether the mandatory requirement to wear lifejackets (and associated implementation, education and enforcement) has led to a reduction in fatalities.

While there may be a consensus that boaters should wear lifejackets, there is not necessarily a consensus on how that should be achieved (Mangione, Chow, & Nguyen, 2012), for example, through the mandatory wearing of lifejackets at least on smaller boats, or educational efforts aimed at raising safety awareness, knowledge level or skill.

In Canada, despite repeated public campaigns promoting the use of PFDs, it appeared that the majority of boaters ignore this advice. During the period 1991 to 1995, only 12% of recreational boating drowning victims were properly wearing a PFD; in 1996 to 2000, the figure was 11%; and from 2001 to 2008 the figure was 14%. Despite regulations that require a PFD be present in the boat, in at least 27% of boating drownings from 1991 to 2008, this was not the case (Transport Canada & Canadian Red Cross Society, 2011).

A comprehensive 2003 Canadian research study (Groff & Ghadiali, 2003), commissioned by the Canadian Safe Boating Council, sought to move beyond this apparent deadlock. Entitled *Will it float? Mandatory PFD wear legislation in Canada*, this large study took a very systematic and staged approach which the researchers described as follows:

First, it must be determined whether there is a problem that needs to be addressed; second, that mandatory PFD use is likely to address this problem; third, that it is possible to successfully work towards such a regulatory solution; and finally, that there is evidence that such legislation could be successfully implemented. The study concluded that legislation was likely to be the most effective means of increasing PFD wear and that such legislation should be feasible in Canada.

This section on lifejackets finishes with an interesting large-scale multi-year mandatory lifejacket study in the US, on boating visitors to waters that are managed by the US Corps of Engineers (US Corps of Engineers, n.d.). The Corps of Engineers are the largest provider of outdoor education in the US and have had almost 2,000 boaters and swimmers die in recreational accidents in their managed waters since 1998.
The mandatory use of lifejackets was introduced by the Corps of Engineers on a number of test sites (lakes); they used a range of different research methods including the use of control groups. What this study found was that making the use of lifejackets mandatory, could increase wear rates. In Vicksberg for example, wear rates rose in this district from less than 10% before the study, to over 70% at all four of their lakes. Meanwhile, wear rates at the nearby control sites remained at the 10% level. However, the other two districts showed virtually no change at all, and in fact one of the test sites was consequently dropped from the study altogether. The comprehensive study report provides a very useful case study on issues around the implementation of a mandatory lifejacket policy.

**Boater training**

Best practice in relation to recreational boating safety training or education in the US, has been summarised as “ensuring availability of educational programs, ensuring the content and quality of the educational programs, getting more people to obtain the education, and finally, getting people to act on what they learn (Graefe, p. 69). However, despite the fact that recreational safety courses are mandatory for power boat operators in most Australian and US states, and a requirement for many Canadians, it is perhaps surprising that no studies appear to have been published that explore the relationship between training courses and recreational boating fatalities (Quan, Bennett, & Branche, 2007).

There are, however, studies in which some boaters who have attended a recreational boating safety course report that they have changed some of their behaviours as a result of attendance. For example, as part of a research study on the uptake of the then new Recreational Skippers Ticket in Western Australia, Virk and Pikora (2010) surveyed boaters who had gained their ‘ticket”; they too found that those who had undertaken the training were more likely than other recreational boaters in Western Australia, to be male, experienced, and a member of a boating club. However, these researchers also identify the need for further research on the Recreational Skippers Ticket and “its influence upon attitude, knowledge, and behaviour of recreational boaters” (p. 175).
Finally, one other US research study that is worth mentioning on education and training courses, comes from a study exploring the causes of recreational boating accidents (McKnight, Becker, Pettit, & McKnight, 2007). These researchers found that while multiple human errors are central to recreational boating fatalities, those errors, and how they manifest, vary considerably across vessel types. They therefore argue that it is important that accident prevention measures, including safety training courses, need to be geared towards the individual type of vessel that a recreational boater is going to be using.

**Boating injuries**

As well as the impact of fatalities on families and communities, the level and nature of non-fatal accidents is also an important social policy issue (O’Connor, 2001; Lawrence & Miller, 2006). O’Connor (2001) found that in Australia about 1,000 people are admitted into hospital annually as a result of boating accidents (including commercial), and consume more than 3,934 bed days a year.

In the US, Lawrence and Miller (2006) estimated non-fatal hospital-admitted boating injuries, and non-fatal non-admitted boating injuries, as 2,181 and 30,000 respectively. However, despite being a mandatory requirement, US non-fatal boating injuries (and damage to property) are under-reported by a significant degree; the same may be the case in other jurisdictions. From their analysis of the US national *Boating Accident Report Database* (BARD) for the year 2002, Lawrence and Miller (2006) estimated that 20% of non-fatal hospital-admitted boating injuries were not reported and that over 90% of non-fatal non-admitted boating injuries that required treatment at a hospital emergency department, clinic or doctors surgery, were not captured by the BARD at all.

While it is difficult to determine whether such under-reporting has impacted on the degree of attention that is paid to non-fatal injury prevention by statutory and other bodies with responsibility for recreational boating safety, the above Australian study also found that while the number of boating fatalities (including commercial) decreased over the 1980s and 1990s, the number of serious non-fatal injuries, as measured by hospitalisations remained fairly constant (O’Connor, 2001). This finding challenges any assumption that a focus on reducing fatalities will necessarily lead to a corresponding decrease in the level, and severity, of serious non-fatal injuries.
**Conclusion**

The body of published overseas research literature on recreational boating safety is very limited and the research that exists probably raises as many questions as it does answers. Certainly the research literature offers few ‘silver bullets’ on the reduction of recreational boating fatalities and serious injuries. However, while there are some differences in recreational boating in different countries, states and provinces, overseas research provides opportunities for lessons to be learnt from other boaters, professionals and researchers, whilst also promoting the value of the development of knowledge and understanding internationally that can complement, and add depth to, everyday professional and recreational experience. A clear and critical understanding of recreational boating safety and related research by eminent overseas researchers, groups or organisations in relation to specific areas such as alcohol, PFDs, injuries and cold water immersion, should also form an essential element of the evidence base for considering any and all new initiatives. This is particularly important in instances where there is little or no comparable and robust New Zealand research.
References


Transport Canada and the Canadian Red Cross Society (2011). *Boating immersion and trauma deaths in Canada: 18 years of research*. Ottawa, ON. Authors.


APPENDIX 4: RANGE OF PLEASURE BOAT SAFETY INTERVENTIONS IN PLACE OVERSEAS

Introduction
The following is a summary of overseas pleasure boat safety measures and interventions. The material is largely, but not exclusively, drawn from the websites of statutory bodies in other countries, states, provinces or territories, with responsibility for pleasure boat safety; some references have also been made to presentations that were given at the last FORUM meeting in Queenstown, and a report that was prepared by Marico Marine Group (2007) for the UK Maritime & Coastguard Agency. This document has been prepared to support the review process.

There are some limitations here. Firstly, the document does not purport to be exhaustive, and many of the statutory requirements in other jurisdictions are quite detailed and so have not been captured in full. Secondly, in some countries there are also significant exclusions to specific mandatory requirements. Thirdly, the identification of jurisdictions should be seen as illustrative only and there may well be other countries with similar arrangements in place. Fourthly, some jurisdictions will have areas that may be subject to additional local bylaws which have not been captured here. It should also be noted that even in English-speaking countries, the use of the same term may have different meanings in different jurisdictions; this issue can be further compounded when terms are translated into English, for example the terms registration and license.

However, from the tables below, it is clearly apparent that while there are some overseas jurisdictions with interventions and initiatives that are very similar to our own, there are also a range of other regulatory, enforcement, support, education and information levers that are not necessarily used in New Zealand; this exercise also suggests the importance of considering how individual interventions and initiatives may most optimally work together. Data sources have been noted, as the position in a particular jurisdiction may have changed since publication.
The document briefly identifies interventions and initiatives under the following broad headings:

- **Regulatory**
  - Lifejackets/personal floatation devices
  - Other safety equipment
  - Skipper licensing
  - Vessel registration and periodic certification
  - Mandatory insurance
- **Enforcement**
- **Boat and equipment manufacturing (including regulatory)**
- **Social marketing**
- **Training**
- **Advice, assistance and support**
- **Monitoring, research and evaluation**
- **National leadership**

### Regulatory

#### Lifejackets/Personal floatation devices

<table>
<thead>
<tr>
<th>Measure/intervention</th>
<th>Illustrative jurisdiction(s) and source(s)</th>
</tr>
</thead>
</table>
| Compulsory wearing of lifejackets for all adults | - TAS (Marine and Safety Tasmania, 2013). Currently also consulting on strengthening provisions in relation to kayaks etc.  
- US areas under jurisdiction of the Army Corps of Engineers (some) (USCG, 2013b).  
- Ireland – under 7m and PWC (Marico Marine Group, 2007).  
- Spain (powered boats) (Marico Marine Group, 2007). |
| Compulsory wearing of lifejackets for children (definition of child varies significantly) | - All US states and many PWC operators (BoatUS, 2013).  
- Ireland (Department of Transport, 2007).  
- VIC (Transport Safety Victoria, 2013; Thomson, 2013).  
| Compulsory wearing of lifejackets on smaller craft | - Ireland (7m) (Department of Transport, 2007).  
- VIC (4.8) (Transport Safety Victoria, 2013). |
| Compulsory wearing of lifejackets when alone on vessel | - VIC (Transport Safety Victoria, 2013). |
- Ireland (Department of Transport, 2007). |
An adequately sized lifejacket for all on board

- Canada (Transport Canada, 2011).
- Denmark (Danish Maritime Authority, 2006).
- Italy – beyond 300m from shore (Marico Marine Group, 2007).

No mandatory safety (or fire fighting) equipment requirements

- UK vessels at sea (under 13.7m/less than 12 passengers).
  Therefore reliant on Chapter V of the International Convention for the Safety of Life at Sea (Maritime and Coastguard Agency, 2007). However, significant measures are in place for river and canal boats (United Kingdom Government, 2013a).

Compulsory winter PFD wear

- Pennsylvania (Pennsylvania Fish and Boat Commission, 2013).

Different PFDs for range of circumstances and activities

- QLD (Maritime Safety Queensland, 2013).

**Other safety equipment**

<table>
<thead>
<tr>
<th>Measure/intervention</th>
<th>Illustrative jurisdiction(s) and source(s)</th>
</tr>
</thead>
</table>
| Compulsory and (very) comprehensive equipment specific to type/length | • Canada (Transport Canada, 2010).
  • France (Marico Marine Group, 2007).
  • Ireland (for recreational craft over 13.7m) (Maritime Safety Directorate & Irish Coast Guard, 2008).
  • SA (Government of South Australia, 2013). |
| Licensing of radio-communications transmitting equipment | • Ireland (if voluntarily fitted or carried) (Maritime Safety Directorate & Irish Coast Guard, 2008). |
| Qualification of radio-communications transmitting equipment operator | • Ireland (if equipment voluntarily fitted or carried) (Maritime Safety Directorate & Irish Coast Guard, 2008). |
| EPIRB (Emergency Position Indicating Radio Beacon) or PLB (Personal Locator Beacon) | • Required in a number of situations – can include kayaks out at sea (Government of South Australia, 2013).
  • Ireland (if voluntarily fitted must be carried) (Maritime Safety Directorate & Irish Coast Guard, 2008). |
| Prescribed fire fighting equipment | • Ireland (over 13.7m) (Maritime Safety Directorate & Irish Coast Guard, 2008).
  • SA (Government of South Australia, 2013). |

**Skipper licensing**

<table>
<thead>
<tr>
<th>Measure/intervention</th>
<th>Illustrative jurisdiction(s) and source(s)</th>
</tr>
</thead>
</table>
| Mandatory skipper licensing/proof of competency/education programmes | • NSW, QLD, SA, TAS, VIC and WA (WA is a Certificate of Competency) (Thomson, 2013).
  • South Africa – skipper of a sailing vessel over 9m in length, or power-driven vessel with power exceeding 15hp (Department of Transport South Africa, 2007).
  • Norway (if born after 1980 and over 8m and/or 25hp or more), Sweden (over 12m in length or 4m wide), Netherlands (motor boats that can reach 20 km/h and all over 15m) (Torralbo & Castells, 2012).
  • Greece (power over 22.37kW/30hp), Italy (sailing and motor boats if 6 miles from shelter or above 30 kW/40.8hp) (Torralbo & Castells, 2012). |
| NB Requirements can vary markedly between jurisdictions and may or may not include an on-water competence assessment | |

134
### Vessel registration and periodic certification

<table>
<thead>
<tr>
<th>Measure/intervention</th>
<th>Illustrative jurisdiction(s) and source(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandatory registration of pleasure boats (although nature of the registration varies widely)</td>
<td>- NSW (annual – power driven vessels greater than 5hp (4kW) or more, any power-driven or sailing vessel of 5.5m or longer, every vessel subject to a mooring license and all PWC (Transport Maritime, 2012; Thomson, 2013).&lt;br&gt;- SA (all vessels equipped with a motor) (Thomson, 2013).&lt;br&gt;- TAS (all vessels with engine of 4hp or more) (Thomson, 2013).&lt;br&gt;- QLD (all vessels with engine of 4hp (3kW) or more) (Thomson, 2013).&lt;br&gt;- France (above 3kW as well as kayaks and other small craft more than 300m from shore), Germany, Italy (longer vessels), Spain and Switzerland (requirements similar as for passenger cars) (Torralbo &amp; Castells, 2013; Marico Marine Group, 2007).&lt;br&gt;- Ireland (mandatory over 15 NRT (– approximately 12m – voluntary under 12m) (Maritime Safety Directorate &amp; Irish Coast Guard, 2008).&lt;br&gt;- Greece – stay and circulation permit (Marico Marine Group, 2007).&lt;br&gt;- Italy – powered over 7.5m and unpowered over 10m (Marico Marine Group, 2007).</td>
</tr>
</tbody>
</table>
- Malta (Marico Marine Group, 2007).
- Netherlands – capable of 20km/h (Marico Marine, 2007)
- Norway (mandatory over 15m and voluntary if under 15m but more than 7m) (Norwegian Maritime Authority, n.d.).
- Spain – a 'Certificate of Navigation' is required for all vessels 2.5m+. This is issued subject to an initial survey by the Marine Office and periodic inspection by a local authority. A certificate generally has a 5 year duration, with an interim inspection between year 2 and 3 (Marico Marine Group, 2007).
- Sweden – vessels 12m+ only (Marico Marine Group, 2007).
- Canada – all powered vessels with engines over 10hp (no charge), as well as large vessels with a tonnage over 15 gross tonnes (Transport Canada, 2008).

| Registration number visible on vessel | Malta (Marico Marine Group, 2007). |
| Certificate of fitness for vessel | South Africa – sailing vessel over 9m in length, and power-driven vessel with power exceeding 15hp, must hold a valid certificate of fitness in respect of the vessel (Department of Transport South Africa, 2007).
- Denmark (over 15m and older than 15 years and used with 6+ children under 18 on board (Danish Maritime Authority, 2006).
- UK – most river and canal boats (but not canoes, kayaks and rowboats) require a Boat Safety Scheme Certificate before they can be licensed or registered. It must be renewed at least every four years – similar to a car Warrant of Fitness (United Kingdom Government, 2013a). |

| Outlawing high risk craft | Canada (using a propeller-driven surfboard is outlawed) (DiscoverBOATING, n.d.).
- Sweden (PWCs are banned other than for use in specially-designated areas for training and competitions) (International Boat Industry, n.d.). |


### Mandatory insurance

<table>
<thead>
<tr>
<th>Measure/intervention</th>
<th>Illustrative jurisdiction(s) and source(s)</th>
</tr>
</thead>
</table>
| Mandatory 3rd Party Insurance Cover | Italy (Marico Marine Group, 2007).
- Greece – includes sea pollution (Marco Marine Group, 2007).
- Malta – for speedboats (Marico Marine Group, 2007).
- Spain – all recreational vessels (Marico Marine Group, 2007).
- UK – many powered river and canal boats (UK Government, 2013a). |

| Insurance discounts | US – even where training is not mandatory, some US insurance companies give discounts if the state’s recommended recreational boating training course has been undertaken (BoatUS, 2014). |
### Enforcement

<table>
<thead>
<tr>
<th>Measure/intervention</th>
<th>Illustrative jurisdiction(s) and source(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High level of enforcement and prosecutions</td>
<td>US – the USCG stops and boards about 30,000-40,000 vessels per year while the individual states will stop and board an additional 1.7 million (Hoedt, 2013).</td>
</tr>
<tr>
<td>Existence of high criminal and civil legal sanctions for breaking the law</td>
<td>• US (Hoedt, 2013).</td>
</tr>
<tr>
<td>Boating under the influence initiatives</td>
<td>• US – high profile marina checks as well as non-statutory ‘pledges’ (Hoedt, 2013).</td>
</tr>
<tr>
<td></td>
<td>• QLD – on-water random breath tests since 1989 (Marico Marine Group, 2007).</td>
</tr>
<tr>
<td>Low alcohol limit for skippers</td>
<td>• Sweden – BAC of 0.2 mille for boats over 33ft that can do 15 knots (SweBoat, n.d.).</td>
</tr>
<tr>
<td></td>
<td>• Finland – BAC of 0.1 mille for vessels above the size of a rowing boat or comparable size and speed (Finnish Ministry of Justice, n.d.).</td>
</tr>
<tr>
<td></td>
<td>• Denmark – BAC limit of 0.50 per mille applies to pleasure craft with a length of 15m (approx. 50ft) or above, high speed craft capable of planing, and jet skis etc. In addition, operators of canoes, kayaks, rowboats and similar vessels are prohibited from navigating their vessels whilst under the influence of alcohol or drugs (Danish Maritime Authority, 2006).</td>
</tr>
<tr>
<td></td>
<td>• Ireland – vessel cannot be operated whilst under the influence of alcohol or drugs (Maritime Safety Directorate &amp; Irish Coast Guard, 2008).</td>
</tr>
<tr>
<td></td>
<td>• South Africa – blood test of 0.05g or more per 100ml, or in any specimen of breath exhaled is 0.24mg or more per 1000ml (Department of Transport South Africa, 2007).</td>
</tr>
<tr>
<td></td>
<td>• Norway – 0.8 mg/ml when in charge of a boat (Sjøfartsdirektoratet, 2014).</td>
</tr>
<tr>
<td>On-water speed detection devices</td>
<td>• QLD – since 1999 (Marico Marine Group, 2007).</td>
</tr>
</tbody>
</table>

### Boat and Equipment manufacturing

<table>
<thead>
<tr>
<th>Measure/intervention</th>
<th>Illustrative jurisdiction(s) and source(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Canada (Transport Canada, 2013c).</td>
</tr>
<tr>
<td></td>
<td>• EU states and Iceland and Norway – Recreational Craft Directive – 2003/44/EC relates to design and construction of recreational craft from 2.5m up to 24m in length (Royal Yacht Association, 2006).</td>
</tr>
<tr>
<td></td>
<td>• UK – river and canal boats may have to comply with prescribed standards for boat construction (UK Government, 2013a).</td>
</tr>
<tr>
<td>Prescribed floatation test that each boat or sub part must be manufactured, constructed or assembled to pass</td>
<td>• US (USCG, n.d.).</td>
</tr>
<tr>
<td></td>
<td>• EU states and Iceland and Norway - Recreational Craft Directive – 2003/44/EC includes requirements for assessment and certification of stability and/or buoyancy (Royal Yacht Association, 2006).</td>
</tr>
<tr>
<td></td>
<td>• South Africa - Power-driven vessels with less than 15hp, sailing dinghies and non-power driven vessels under 7m and overall</td>
</tr>
</tbody>
</table>
length shall have sufficient buoyancy to keep the vessel afloat when completely swamped (Department of Transport South Africa, 2007).

- QLD – positive floatation for vessels since 1996 (Marico Marine Group, 2007).

**Builders Plate**

- Australia - the Australian Builders Plate (ABP) is a national initiative to make boating safer by providing vital information about the capacity, capability and limitations of boats. Boat builders and importers must clearly display information about a vessel’s operational capabilities in a standard format. Penalties apply for selling vessels without an ABP (ANZSBEG, 2014).

**Capacity label**

- All registrable recreational boats, with the exception of sailing ships, must have and clearly display either a compliant Australian Builders Plate (ABP) or the required capacity labels (Maritime Safety Queensland, 2014).

**Carbon monoxide poisoning**


**Close working between pleasure boat safety agencies and lifejacket manufacturers**

- UK(Chennell, 2013).

**Marine safety equipment**


**Limitations on vessel modifications**

- Malta – modification of the hull, or replacement of engine requires approval of the Maritime Authority (Marico Marine Group, 2007).

### Awareness Raising

<table>
<thead>
<tr>
<th>Measure/intervention</th>
<th>Illustrative jurisdiction(s) and source(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social marketing campaigns</td>
<td>Multiple</td>
</tr>
</tbody>
</table>
- Finland - The Finnish Swimming Teaching and Lifesaving Federation (FSL) FSL has a visible role in the ‘Safely In Water’ campaign, which has three main themes: Swimming ability saves your life; Always wear a lifejacket when you are in water; Do not consume alcohol when you are in the water (Finnish Swimming Teaching and Lifesaving Federation, 2014) |
### Information

<table>
<thead>
<tr>
<th>Measure/intervention</th>
<th>Illustrative jurisdiction(s) and source(s)</th>
</tr>
</thead>
</table>
| Recreational Boating Safety handbooks and guides          | • Australia – NSW, VIC, SA, WA, QLD, NT, TAS.  
• Canada – national handbook (Transport Canada, 2008),  
• US – most states.                                         |
| National recreational boating safety website             | • Canada - Canadian Safe Boating Council [www.SmartBoater.ca](http://www.SmartBoater.ca)  
• Ireland – mainly but not exclusively recreation boating [http://www.safetyonthewater.ie](http://www.safetyonthewater.ie)  
• Norway - Norwegian Maritime Authority and partner organisations. The site is only in Norwegian. [www.sjovett.no](http://www.sjovett.no) |

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### Training (see also ‘skipper licensing/proof of competency/education programmes under Skipper licensing and Vessel registration)

<table>
<thead>
<tr>
<th>Measure/intervention</th>
<th>Jurisdiction and source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approved education programmes</td>
<td>• US – all states must have an education programme approved by the USCG.</td>
</tr>
<tr>
<td>Accreditation of training providers by the statutory agency responsible for pleasure boat safety</td>
<td>• Canada (Transport Canada, 2013b).</td>
</tr>
</tbody>
</table>

---

### Advice, Assistance and Support

<table>
<thead>
<tr>
<th>Measure/intervention</th>
<th>Illustrative jurisdiction(s) and source(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subsidised lifejackets</td>
<td>• UK (Chennell, 2013).</td>
</tr>
<tr>
<td>Government approval of personal floatation devices</td>
<td>• US (USCG, 2013c).</td>
</tr>
</tbody>
</table>
| Voluntary notification of boat trip scheme/float plan/sail plan | • UK (lodged with MCA) (Maritime & Coastguard Agency, 2013).  
• Canada and US (lodged with family or friends) (Department of Transportation, 2008). |
| Lifejacket maintenance workshops                          | • UK (Chennell, 2013).                                                                                    |
| Annual North American Safe Boating Awareness Week        | • Canada and US (Obama, 2013).                                                                            |
| Voluntary schemes to inspect pleasure boats (and equipment) | • Sweden (inspection of old pleasure boats) (SweBoat, n.d.).  
• Canada (‘Courtesy Check’) (Transport Canada, 2013d).  
• US (‘Vessel Safety Check’ with VSC sticker - and thus lead to less contact with enforcement officers) (USCG, 2000). |
| High level of search and rescue capability and capacity   | • US (Hoedt, 2013).                                                                                       |
| Nautical charts                                           | • Ireland (over 12m). More requirements if over 5 nautical miles from any coastline (Maritime Safety Directorate & Irish Coast Guard, 2008). |
### Monitoring, research and evaluation

<table>
<thead>
<tr>
<th>Measure/intervention</th>
<th>Illustrative jurisdiction(s) and source(s)</th>
</tr>
</thead>
</table>
| Independent newspaper clipping services | • US (fatalities) (Hoedt, 2013).  
• Canada (fatalities) (Transport Canada & Canadian Red Cross, 2011). |
| Annual publication of detailed recreational boat fatality statistics | • Canada (Transport Canada & Canadian Red Cross Society, 2011)  
• US (USCGb, 2013).  
• UK (National Water Safety Forum, n.d.). |
| Annual Fatality Review Panel | • UK (Chennell, 2013). |
| Research Centres | • Australia - Monash University Accident Research Centre.  
• Canada - Drowning Prevention Research, Lifesaving Society.  

### National leadership

<table>
<thead>
<tr>
<th>Measure/intervention</th>
<th>Illustrative jurisdiction(s) and source(s)</th>
</tr>
</thead>
</table>
• Canada - Canadian Safe Boating Council [http://www.csbc.ca/](http://www.csbc.ca/)  
• Norway - Vis Sjøvet is the network of associations that works with the Norwegian Maritime Authority on safe boating (Sjøfartsdirektoratet, 2014). |
| National long-term strategy | • US (Strategic Plan) (USCG, 2011). |
| National targets | • US (USCG, 2011). |
References


Marico Marine Group. (2007). Research to determine the regulatory approaches to recreational vessels within the EU, Canada, Australia, New Zealand and the USA. Retrieved from http://www.thegreenblue.org.uk/pdf/z%201216.%20Research%20to%20Determine%20the%20Regulatory%20Approaches%20to%20Recreational%20Vessels.pdf


### APPENDIX 5: OTHER FORMS OF TRANSPORT COMPARED

<table>
<thead>
<tr>
<th></th>
<th>Motorcycles &amp; mopeds</th>
<th>Bicycle</th>
<th>Non-Commercial Aeroplane Pilot</th>
</tr>
</thead>
<tbody>
<tr>
<td>National mandatory registration?</td>
<td>Yes – must register &amp; license both. Registration establishes the person legally responsible for vehicle, and is also the process to issue number plates. Vehicle licensing is the process to pay to use vehicle on public roads, and is also the process to issue license labels.</td>
<td>No</td>
<td>Yes – Section 6 of the Civil Aviation Act 1990 requires all aircraft to be registered.</td>
</tr>
<tr>
<td>National mandatory inspections?</td>
<td>Motorcycles – Yes Mopeds – No Both must be entry-certified when put on the road in NZ (from overseas).</td>
<td>No</td>
<td>Yes Must hold Certificate of Airworthiness</td>
</tr>
</tbody>
</table>
### Motorcycles & mopeds

<table>
<thead>
<tr>
<th>National mandatory operator licensing?</th>
<th>Health e.g. sight (a)</th>
<th>Course attendance (b)</th>
<th>Knowledge test (c)</th>
<th>Competence test (d)</th>
<th>Age (e)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes. Moped riders (any NZ driver license), and motorcycle riders (motorcycle driver license).</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Summary:</strong></td>
<td>(a) Yes</td>
<td>(b) Optional</td>
<td>(c) Yes</td>
<td>(d) Yes</td>
<td>(e) Yes</td>
</tr>
<tr>
<td>Both have three stages to getting a license: (1) learner; (2) restricted; (3) full. Both must confirm medically fit when applying for, renewing or replacing driver license. Eyesight must meet required standard. Both must pass a road rules theory test prior to getting learner license. Motorcycle riders must pass a basic handling skills test, and may only ride an approved motorcycle while on a learner or restricted license. Both must be at least 16 years old to get learner license. Both must be at least 16½ years old, and have held learner license for at least 6 months to apply for restricted license, and pass the restricted license practical driving test. Both must usually be at least 18 years of age, and have held restricted license for 18 months to apply for full license. Must pass the full practical test.</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

### Bicycle

| No |
| **Summary:** | (a) No | (b) No | (c) No | (d) No | (e) No |

### Non-Commercial Aeroplane Pilot

| Yes |
| **Summary:** | (a) Yes | (b) Yes | (c) Yes | (d) Yes | (e) Yes |

**PPL:** Must be at least 17 years of age; hold at least a current class 2 medical certificate, have a minimum 50 hours flight time experience as a pilot in the appropriate category of aircraft, have valid written examination credits or approved equivalent that cover specified private pilot license subject areas, passed a practical flight test & demonstrated knowledge in examination subjects; knowledge of the privileges and limitations of a private pilot license; technical & operational knowledge relevant to aircraft type used; competence to operate aircraft within its performance capabilities & limitations; competence in radiotelephony (RTF) procedures & phraseology; control of aircraft at all times.

**RPL:** Similar to PPL except that medical certificate is similar to that required for drivers license.
<table>
<thead>
<tr>
<th>National mandatory safety equipment?</th>
<th>Motorcycles &amp; mopeds</th>
<th>Bicycle</th>
<th>Non-Commercial Aeroplane Pilot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes – both mopeds &amp; motorcycles must meet defined vehicle standards for lighting, brakes and tyres, and be in good condition. Approved safety helmets must be worn and securely fastened.</td>
<td>Yes – compulsory for all cyclists on NZ roads to wear cycle helmets that meet an approved standard and are securely fastened. Bicycles must have good brakes on front and back wheels, rear reflector, front and rear lights if riding during the hours of darkness. Manufacturers &amp; retailers must make sure any bicycle sold, and its equipment, complies with the law.</td>
<td>Yes – outlined in Civil Aviation Rules Part 91 (see below).</td>
<td></td>
</tr>
<tr>
<td>Motorcycles &amp; moped riders</td>
<td>Bicycle</td>
<td>Non-Commercial Aeroplane Pilot</td>
<td></td>
</tr>
<tr>
<td>----------------------------</td>
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<td></td>
</tr>
</tbody>
</table>
| National mandatory and detailed rules of the ‘road’? | NZ road code, with a separate publication for motorcyclists. Moped riders must follow the road rules for moped riders and must have the right equipment:  
- cannot ride on a footpath or cycle path  
- must not use hand-held mobile phone while riding  
- must have headlamps on whenever driving  
- can’t ride more than two abreast with other mopeds, and single file only when passing other vehicles (including parked)  
- use direction indicators or stop lamps, or clear arm signal when intending to turn, and reduce speed or stop before making a turn  
- follow the road rules for motor vehicles at intersections  
- carry a passenger only if moped has pillion seat and footrests  
- loads must be secure, and not touch the ground or extend more than 100cm in front of or behind the wheels, or 50cm either side of the centre of the moped. | Cyclists must follow the road rules for bicycle riders and must have the right equipment:  
- May ride on a cycle path (if available) or the road  
- can’t ride more than two abreast with other cyclists, and must ride in single file when passing other vehicles (including parked)  
- if riding during ‘hours of darkness’, must have cycle lights fitted and switched on, and wear reflective material or pedal reflectors.  
- use clear arm signal when intending to turn and reduce speed or stop before making a turn  
- follow the road rules for motor vehicles at intersections  
- secure any load carried, and it must not touch the ground or extend more than 100cm in front of or behind the wheels, or 50cm either side of the centre of the bicycle. | Civil Aviation Rules Part 91 forms the basis of general operating and flight rules for NZ aviation environment. Part 91 requirements ensure that the safe operation of aircraft is possible with minimum endangerment to persons and property.  
- Part 91 applies to all operators of aircraft.  
- Rules are extensive, encompassing:  
  - operating rules  
  - general flight rules  
  - visual flight rules  
  - instrument flight rules  
  - instrument and equipment requirements (incl. emergency equipment)  
  - operator maintenance requirements (including checks, maintenance programmes and schedules, and records)  
  - operating noise limits. |
<table>
<thead>
<tr>
<th>Specific national inter-agency injury prevention forum?</th>
<th>Motorcycles &amp; mopeds</th>
<th>Bicycle</th>
<th>Non-Commercial Aeroplane Pilot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes – Motorcycle Safety Advisory Council</td>
<td></td>
<td>Maybe – Cycling Advocates’ Network?</td>
<td>No</td>
</tr>
</tbody>
</table>
| Estimated participant numbers                         | 63,167 Motorcycles & 23,298 Mopeds (NZTA, 2013). | 22.7% of all NZ adults aged 16+ years (745,183 people) had participated in cycling at least once (SPARC, n.d.). 419,000 young people aged 5-14 years participated in cycling at least once in 2011 (SNZ, 2012). | • PPL (Aeroplane) 10563  
• PPL (Glider) 9  
• PPL (Helicopter) 1224  
• RPL 402 this (CAA, 2013) |
| Fatality/serious injuries data sources                 | 41 deaths & 1,176 injuries (MoT, 2013). | 30 deaths & 811 injuries (MoT, 2013). | • 2013 year to April  
• 2012 – 5 fatalities, 3 serious injuries  
• 2011 – 5 fatalities, 6 serious injuries, 4 minor injuries (CAA, n.d.). |

References


### APPENDIX 6: OTHER FORMS OF RECREATION COMPARED

<table>
<thead>
<tr>
<th></th>
<th>Scuba diving</th>
<th>Mountaineering</th>
<th>Hunting</th>
</tr>
</thead>
<tbody>
<tr>
<td>National mandatory registration?</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>National mandatory inspections?</td>
<td>Some – the Hazardous Substances (Compressed Gases) Regulations 2004 require gas cylinders of a type used in scuba diving to be visually tested each year and hydrostatically tested every 2 years.</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>National mandatory operator licensing?</td>
<td>No</td>
<td>No</td>
<td>Yes – anyone wishing to possess or use firearms is required to hold a license.</td>
</tr>
<tr>
<td>(a) Health e.g. sight</td>
<td>No</td>
<td>No</td>
<td>Summary:</td>
</tr>
<tr>
<td>(b) course attendance</td>
<td>No</td>
<td>No</td>
<td>(a) No</td>
</tr>
<tr>
<td>(c) knowledge test</td>
<td>No</td>
<td>No</td>
<td>(b) No</td>
</tr>
<tr>
<td>(d) competence test</td>
<td>No</td>
<td>No</td>
<td>(c) No</td>
</tr>
<tr>
<td>(e) Age</td>
<td>No</td>
<td>No</td>
<td>(d) No</td>
</tr>
</tbody>
</table>

Summary: (a) No (b) Yes (c) Yes (d) No (e) Yes

The applicant must:
- be over 16;
- be a ‘fit and proper person’ to possess and use firearms;
- attend a safety lecture;
- pass a written test based on the Arms Code;
- have a police officer inspect security at the applicant's home (a gun rack, safe, strong-room or ‘receptacle of stout construction’ is required);
- undergo an interview with a police officer;
- provide two referees, one a relative and one not, and:
- pay a license fee.

Licenses are issued for a period of 10 years.

<table>
<thead>
<tr>
<th></th>
<th>Scuba diving</th>
<th>Mountaineering</th>
<th>Hunting</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Dive flags (diving from)</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>
### Scuba diving

<table>
<thead>
<tr>
<th>Mandatory safety equipment</th>
<th>Mountaineering</th>
<th>Hunting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boat)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Legal requirement for a dive flag (at least 600mm x 600mm) to be displayed. It must be able to be identified from 200m away.</td>
<td>The New Zealand Mountain Safety Council encourages the use of The Outdoor Safety Code.</td>
<td>Fish &amp; Game NZ provides regulations for game bird hunting, and issues licenses. However, these are not safety oriented.</td>
</tr>
<tr>
<td>• All other boat users must maintain at least 200m distance from the flag or keep speed down to under 5 knots.</td>
<td></td>
<td>The possession and use of firearms in New Zealand is controlled by the Arms Act 1983 and regulations made under that Act. However, these are not regulations for the safe operation of firearms, e.g. in hunting environments.</td>
</tr>
</tbody>
</table>

### National mandatory and detailed rules of the ‘road’?

<table>
<thead>
<tr>
<th>Scuba diving</th>
<th>Mountaineering</th>
<th>Hunting</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Specific national inter-agency injury prevention forum?

<table>
<thead>
<tr>
<th>Scuba diving</th>
<th>Mountaineering</th>
<th>Hunting</th>
</tr>
</thead>
</table>

### Estimated participant numbers

<table>
<thead>
<tr>
<th>Scuba diving</th>
<th>Mountaineering</th>
<th>Hunting</th>
</tr>
</thead>
</table>

### Fatality/serious injuries data sources

<table>
<thead>
<tr>
<th>Scuba diving</th>
<th>Mountaineering</th>
<th>Hunting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fatal drownings in underwater activity (Free diving, scuba diving, snorkelling) 2012 = 3 (incl. 1 scuba) 2011 = 13 (5 scuba)</td>
<td>Yr to Jun 2011: 116 new claims (incl ≤3 fatals) Yr to Jun 2012: 142 (incl 0 fatals) Yr to Jun 2013: 111 (incl 0 fatals) (ACC, n.d.).</td>
<td>Yr to Jun 2011: 1,064 new claims (incl ≤3 fatals) Yr to Jun 2012: 1,122 (incl 4 fatals) Yr to Jun 2013: 1,114 (incl 0 fatals) (ACC, n.d.).</td>
</tr>
</tbody>
</table>
### References


APPENDIX 7: BOATING EDUCATION/TRAINING PROVIDERS AND COURSES

Introduction

Listed below is a range of recreational boating training providers and courses available in New Zealand. It should be noted that neither the Forum nor MNZ accredit or endorse individual organisations or courses in relation to recreational boating training. Furthermore, this list is not exhaustive:

Coastguard boating education

The following courses are available through CBE accredited trainers located nationwide:

- Day Skipper (core course)*
- Boatmaster (core course)*
- Maritime VHF Operator Certificate (core course)*
- Maritime Restricted Operator Certificate (MROC)*
- Bar Crossing
- Coastal Skipper*
- Ocean Yachtmaster*
- Radar
- GPS Operator*
- Inboard Engine Maintenance*
- Outboard Engine Maintenance*
- Marine Medic
- Basic Sea Survival
- Advanced Sea Survival
- Sea Kayak*
- Club Safety Boat Operator – Yacht Club version
- Club Safety Boat Operator – Rowing Club version
- Legal and Safe Ship Management
- RYA Personal Water Craft
- RYA Powerboating Level 1
- RYA Powerboating Level 2
- RYA Powerboating intermediate
- RYA Powerboating advanced
- RYA Start Yachting
- RYA Competent Crew
- RYA Day Skipper Practical (Sail)
- RYA Coastal Skipper Practical (Sail)
- RYA Helmsman’s Course
- RYA Day Skipper Practical (MC)
- RYA Coastal Skipper Practical (MC)
- NCEA Unit Standards in Core Courses (through schools)
- Day Skipper Experience Youth Programmes (with schools)
- RYA/MCA Advanced Powerboat
- RYA/MCA Yachtmaster Coastal
- RYA/MCA Yachtmaster Offshore
- RYA/MCA Yachtmaster Ocean
- International Certificate of Competence (ICC)
- RYA Professional Practices and Responsibilities
- RYA Yachtmaster Instructor (Sail Cruising)
- RYA Yachtmaster Instructor (Motor Cruising)
- RYA Powerboat Instructor

* Home Study Option available
Through their Maritime School, the Northern Region of CBES also runs the following courses. With the exception of *Ladies Suddenly in Charge*, these all relate to canoes and kayaks:

- Kayak Surfing
- Eskimo Rolling
- Oceans Course
- Sea Kayaking Skills Course
- Introduction to White Water
- Maritime Restricted Operators Certificate (MROC)
- Sea Kayak Module

**Yachting New Zealand**

The following courses are available through YNZ affiliated clubs nationwide:

- Dinghy Learn to Sail
  - Start... Sailing! (Level 1)
  - Sailing... Fast! (Level 2)
  - Go... Racing! (Level 3)
- Keelboat Learn to Sail
  - Introduction to Keelboat Sailing (Level 1)
  - Competent cruising crew (Level 2)
  - Overnight Skipper (Level 3)
- Volvo Sailing... Have A Go!: School programme for children aged 8 to 12
- NCEA: SailSafe resources for schools

**New Zealand Underwater Association**

As well as running diving-specific courses, the NZUA also runs the following:

- New Skippers Experience Program
- Intermediate Skippers Program
- Advanced Skippers Program
- Risk Management
Other recreational boating training providers

The following organisations each provide a range of recreational boating courses – mainly CBE, YNZ and/or RYA:

<table>
<thead>
<tr>
<th>PROVIDER</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>46 South Marine &amp; Adventure Training</td>
<td>Whangarei, Auckland &amp; Queenstown</td>
</tr>
<tr>
<td>Bay Sail NZ</td>
<td>Bay of Islands</td>
</tr>
<tr>
<td>Canterbury Maritime Training</td>
<td>Lyttelton</td>
</tr>
<tr>
<td>Coastal and Offshore Sailing School</td>
<td>Waiheke Island</td>
</tr>
<tr>
<td>Elements Watersports</td>
<td>Tauranga &amp; Auckland</td>
</tr>
<tr>
<td>eNautical Maritime School</td>
<td>Home-study courses &amp; e-learning</td>
</tr>
<tr>
<td>Gulfwind Sailing Academy</td>
<td>Auckland</td>
</tr>
<tr>
<td>Mahurangi Technical Institute</td>
<td>Warkworth</td>
</tr>
<tr>
<td>Charterlink Marlborough - RYA Sailing School</td>
<td>Picton</td>
</tr>
<tr>
<td>Morningtide Marine Education &amp; Safety</td>
<td>Auckland</td>
</tr>
<tr>
<td>NZ Legend Boating Club – Boating Academy</td>
<td>Auckland</td>
</tr>
<tr>
<td>Nelson Maritime School (Nelson Marlborough Institute of Technology)</td>
<td>Nelson</td>
</tr>
<tr>
<td>Onehunga High School Community Education*</td>
<td></td>
</tr>
<tr>
<td>Pakuranga High School Community Education*</td>
<td></td>
</tr>
<tr>
<td>Powerboat Training New Zealand</td>
<td>Auckland</td>
</tr>
<tr>
<td>Queenstown Water Taxis (RYA Training Centre)</td>
<td>Queenstown</td>
</tr>
<tr>
<td>Rangitoto College Community Education*</td>
<td></td>
</tr>
<tr>
<td>Royal Akarana Yacht Club</td>
<td>Auckland</td>
</tr>
<tr>
<td>Royal Port Nicholson Yacht Club</td>
<td>Wellington</td>
</tr>
<tr>
<td>Rutherford College Community Education Centre*</td>
<td>Auckland</td>
</tr>
<tr>
<td>Sail Nelson</td>
<td>Nelson</td>
</tr>
<tr>
<td>Sailing Away School of Sailing</td>
<td>Auckland</td>
</tr>
<tr>
<td>Sailing First (Training Centre)</td>
<td>Warkworth</td>
</tr>
<tr>
<td>Selwyn College Community Education*</td>
<td>Auckland</td>
</tr>
<tr>
<td>Te Wānanga o Aotearoa (Certificate in Waka Ama - Level 4)</td>
<td>Locations available: Mangere, Maniapoto/Te Kuiti, Huntly, Hamilton, Whanganui, Gisborne</td>
</tr>
<tr>
<td>Wellington High School Community Education</td>
<td></td>
</tr>
<tr>
<td>Wellington Ocean Sports (Training Centre)</td>
<td>Wellington</td>
</tr>
</tbody>
</table>

* Auckland Community Education Coastguard Boating Courses – many of these courses are subsidised by Auckland Council.
APPENDIX 8: THE SWISS CHEESE MODEL AND RECREATIONAL BOATING

The Swiss cheese model of accident causation is used in risk analysis, risk management and injury prevention. It is widely employed in the nuclear power industry, transport sector and healthcare. However, the model has also been used in relation to recreational boating, commercial boating and shipping (for example, Chauvin, 2011; Ghanem, 2009; King, n.d.). The model explores the causes of accidents, with a particular focus on the interactions between human and other systems, using the analogy of Swiss cheese slices. Each slice of Emmental cheese represents one of four domains that Reason (1997) refers to as organisational influences, supervision, pre-conditions and specific acts. Individual weaknesses are characterised as holes in the cheese and represent the imperfections in individual safeguards. If the holes in the slices momentarily align, a “trajectory of accident opportunity” is created so that a hazard passes through the holes in each of all the slices and thus leads to a failure. In the following example, a skipper, along with his boating friends, doesn’t worry about his safety whilst at sea – he has been going out for years and has never had a problem. On this one occasion, however, when the swell picked up, he thought it obvious that his passenger would sit tight, but turned around when he heard a crash and saw his friend falling over the side. Not wearing a PFD and unable to swim, he never came back up.

APPLICATION OF THE SWISS CHEESE MODEL (REASON, 1997) TO RECREATIONAL BOATING FATALITIES AND INJURIES WITH EXAMPLE

<table>
<thead>
<tr>
<th>Failure Domain 1: Organisational influences (or safety culture)</th>
<th>Failure Domain 2: Supervision</th>
<th>Failure Domain 3: Preconditions</th>
<th>Failure Domain 4: Specific acts</th>
<th>Result (fatality or serious injury)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weaknesses in national and/or regional safety culture e.g. decision-making forum(s) (aka engine room) not effective; gaps in mix of mandatory enforcement, social marketing, information, manufacturing design, navigation, training, assistance, and rescue measures; focus on the wrong issues; poor boating and boating safety infrastructure, or mandatory and voluntary boating safety requirements not clearly understood by boaters.</td>
<td>Skipper not competent (knowledge, behaviour, attitude and practice) in relation to operating the vessel for the activity, location, and weather conditions.</td>
<td>No, inadequate or poorly maintained, safety equipment and in particular not wearing a serviced, correctly fitting and maintained PFD with the appropriate buoyancy for weight, which is suitable for the activity and location.</td>
<td>Decision errors.</td>
<td>Vessel in collision (vessel, rock, tree etc).</td>
</tr>
<tr>
<td>Weaknesses in community safety culture e.g. local tradition of not taking strong safety measures, poor relationships between boaters and enforcement and other recreational boating staff and volunteers; skipper not a member of a boating club or other group with a high regard for personal safety and little in the way of locally available training and support.</td>
<td>Skipper not competent (knowledge, behaviour, attitude and practice) in relation to keeping in touch, dealing with emergencies, trip planning, wind, weather forecast and hazards, rule of the road and navigation.</td>
<td>No, inadequate or poorly maintained, communications equipment and/or poor knowledge on its use.</td>
<td>Skill-based errors.</td>
<td>Vessel tips over.</td>
</tr>
<tr>
<td>Weaknesses in friends and</td>
<td>Skipper does not</td>
<td>Poorly prepared for trip e.g.</td>
<td>Perceptual errors.</td>
<td>Vessel takes in water.</td>
</tr>
<tr>
<td>Weaknesses in individual’s safety culture e.g. individual does not perceive his or her self as being a skipper and so any mandatory or voluntary requirements not perceived to apply; skipper resistant to complying with national recreational boating safety measures for political reasons; skipper has low regard for personal safety, reluctant to take direction or advice, or lack of funds.</td>
<td>family safety culture e.g. “it is not how we do things””; passengers encourage risk-taking; passengers drinking alcohol, and passengers’ reluctance to adhere to skipper’s instructions and to assist the skipper when asked.</td>
<td>appropriately supervise activities of passengers and potentially hazardous behaviours.</td>
<td>vessel not fit for purpose, location or conditions, vessel not maintained, insufficient fuel, inappropriate clothing, more passengers than is safe, not checking weather forecast, or planned route too ambitious.</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
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<td>---</td>
<td></td>
</tr>
<tr>
<td>None of the passengers are experienced skippers and able to step up in an emergency.</td>
<td>Skipper does not appropriately delegate tasks i.e. either does not delegate tasks, or delegates them to people with insufficient experience.</td>
<td>Skipper fatigued, hung-over and/or taking alcohol and/or drugs.</td>
<td>Violations.</td>
<td></td>
</tr>
<tr>
<td>Issues with skipper’s performance e.g. poor observation of environment/concentration, not following the rules of the road, navigation problems, going too fast, overworking engine.</td>
<td>Unfamiliar/hazardous/busy waters.</td>
<td>Person falls over board (slip, wind, swell).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dangerous passenger movement on vessel.</td>
<td>Skippers unable to adapt well to</td>
<td>Person becoming trapped under water.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Changes in their situation and the culmination of risks.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under extreme stress some individuals ineffective in doing anything to save their own lives.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individuals cannot swim and limited associated personal survival knowledge.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cold water.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No-one on land aware of the details of trip.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Search and Rescue services some distance away.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deterioration in weather.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**References**


APPENDIX 9: FATALITY REVIEW PANEL CONTEXTUAL INFORMATION
The following graphs, based on data held by MNZ, relate to the 32 recreational boating fatalities that occurred over the course of the financial years 2011/12 and 2012/13 (the panel deemed four of these 32 cases to be non-assessable).
Length of vessel involved

![Graph showing the length of vessels involved in fatalities or missing. The categories are Up to 3 m, 3.1-4.5 m, 4.6-6.0 m, 6.1-7.5 m, Over 7.5 m, and Not specified. The bars indicate the number of fatalities or missing, with Not specified having the highest number.]

Type of vessel involved

![Graph showing the type of vessels involved in fatalities or missing. The categories include Dinghy (motorised), Recreation, Power boat / jet boat, Kayak / Canoe, Launch, Dinghy (paddle), Yacht (sail), Dinghy, Kayak, Unpowered Recreation Raft, Inflatable Dinghy, and Unpowered Recreation. The bars indicate the number of fatalities or missing, with Dinghy (motorised) having the highest number.]
Review of the NPBSF Recreational Boating Safety Strategy – Iain Matheson, May 2014

**Location of incident**

<table>
<thead>
<tr>
<th>Location</th>
<th>No. of Fatalities/Missing</th>
</tr>
</thead>
<tbody>
<tr>
<td>A lake</td>
<td>8</td>
</tr>
<tr>
<td>In harbour</td>
<td>10</td>
</tr>
<tr>
<td>At sea</td>
<td>4</td>
</tr>
<tr>
<td>Inshore waters</td>
<td>1</td>
</tr>
<tr>
<td>A river</td>
<td>3</td>
</tr>
<tr>
<td>Offshore waters</td>
<td>2</td>
</tr>
</tbody>
</table>

**Nature of incident**

<table>
<thead>
<tr>
<th>Nature of incident</th>
<th>No. of Fatalities/Missing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capsize</td>
<td>14</td>
</tr>
<tr>
<td>Person overboard</td>
<td>2</td>
</tr>
<tr>
<td>Collision</td>
<td>4</td>
</tr>
<tr>
<td>Spin</td>
<td>1</td>
</tr>
<tr>
<td>Foundered</td>
<td>1</td>
</tr>
<tr>
<td>Flooded</td>
<td>1</td>
</tr>
<tr>
<td>Flip/Overturn</td>
<td>1</td>
</tr>
<tr>
<td>Injury Only</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
</tr>
<tr>
<td>Not applicable</td>
<td>2</td>
</tr>
</tbody>
</table>
## APPENDIX 10: GLOSSARY

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC</td>
<td>Accident Compensation Authority</td>
</tr>
<tr>
<td>ABYC</td>
<td>American Boat and Yacht Council</td>
</tr>
<tr>
<td>ANZBEG</td>
<td>Australian New Zealand Safe Boating Education Group</td>
</tr>
<tr>
<td>BAC</td>
<td>Blood Alcohol Concentration</td>
</tr>
<tr>
<td>CBES</td>
<td>Coastguard Boating Education Service</td>
</tr>
<tr>
<td>CPC</td>
<td>Compliance Plate Certified</td>
</tr>
<tr>
<td>CSBC</td>
<td>Canadian Safe Boating Council</td>
</tr>
<tr>
<td>EPIRB</td>
<td>Emergency Position Indicating Radio Beacon</td>
</tr>
<tr>
<td>hp</td>
<td>Horsepower</td>
</tr>
<tr>
<td>IMO</td>
<td>International Maritime Organisation</td>
</tr>
<tr>
<td>MCA</td>
<td>(UK) Maritime and Coastguard Agency</td>
</tr>
<tr>
<td>MNZ</td>
<td>Maritime New Zealand</td>
</tr>
<tr>
<td>MTA</td>
<td>Maritime Transport Act 1994</td>
</tr>
<tr>
<td>Navigational Safety</td>
<td>The act or process of managing or directing the course of a vessel on, through, over, or under the water</td>
</tr>
<tr>
<td>NASBLA</td>
<td>National Association of State Boating Law Administrators</td>
</tr>
<tr>
<td>NIWA</td>
<td>National Institute of Water and Atmospheric Research</td>
</tr>
<tr>
<td>NPBSF</td>
<td>National Pleasure Boat Safety Forum</td>
</tr>
<tr>
<td>NZC</td>
<td>New Zealand Coastguard</td>
</tr>
<tr>
<td>NZ Boaters Safety Code</td>
<td>Developed by NZSARC and promoted by several Forum members</td>
</tr>
<tr>
<td>NZMIA</td>
<td>New Zealand Marine Industry Association</td>
</tr>
<tr>
<td>NZPBSS</td>
<td>New Zealand Pleasure Boat Safety Strategy</td>
</tr>
<tr>
<td>NZUA</td>
<td>New Zealand Underwater Association</td>
</tr>
<tr>
<td>Per Mille or per mill</td>
<td>An alternative measure of blood alcohol content</td>
</tr>
<tr>
<td>PBSAG</td>
<td>Pleasure Boat Safety Advisory Group</td>
</tr>
<tr>
<td>PFD/Lifejacket</td>
<td>Personal flotation device; buoyancy aid designed to be worn</td>
</tr>
<tr>
<td>PLB</td>
<td>Personal Locator Beacon</td>
</tr>
<tr>
<td>PWC</td>
<td>Personal watercraft</td>
</tr>
<tr>
<td>Recreational or Pleasure boat/craft/vessel</td>
<td>Synonymous terms used in this report</td>
</tr>
<tr>
<td>RCCNZ</td>
<td>Rescue Coordination Centre New Zealand</td>
</tr>
<tr>
<td>RYA</td>
<td>Royal Yachting Association (UK)</td>
</tr>
<tr>
<td>SARC</td>
<td>Search and Rescue Council</td>
</tr>
<tr>
<td>SBA</td>
<td>Safe boating advisor (MNZ volunteer)</td>
</tr>
<tr>
<td>Skipper</td>
<td>Master (refer MTA) or person in charge of the vessel. Legally responsible for the safety of the vessel and for compliance with all regulations</td>
</tr>
<tr>
<td>SOLAS</td>
<td>Safety of Life at Sea (international convention)</td>
</tr>
<tr>
<td>USCG</td>
<td>United States Coast Guard</td>
</tr>
<tr>
<td>VHF radio</td>
<td>Very high frequency radio transmitter/receiver (short-distance communication up to 40 miles)</td>
</tr>
<tr>
<td>WSNZ</td>
<td>Water Safety New Zealand</td>
</tr>
<tr>
<td>YNZ</td>
<td>Yachting New Zealand</td>
</tr>
</tbody>
</table>