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## Water Safety and Aquatic Recreation among International Tourists in New Zealand

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# Water Safety and Aquatic Recreation among International Tourists in New Zealand

## **Cover Page Footnote**

The authors would like to thank Bevan Wait of Distill Research Agency for facilitating the successful completion of the online survey and for his input into the description of the survey methodology in this paper.

### Abstract

Little is known about the water safety knowledge, attitudes, and behaviours of international tourists holidaying in New Zealand. An online survey was conducted among New Zealand residents ( $n = 413$ ) and international tourists ( $n = 181$ ) in August 2015. Significantly more New Zealand residents (69%) than tourists (40%) reported swimming at a beach. Tourists were more likely to hold unsafe beliefs related to swimming and boating activity. More tourists agreed that they would swim at a non-patrolled beach. Both residents and visitors had a poor understanding of rip currents at surf beaches. Ways of promoting water safety messaging to address these shortcomings are discussed.

**Keywords:** drowning prevention, water safety, aquatic recreation, swimming, boating safety, tourism

### Introduction

Participation in outdoor activities is increasingly popular in high income countries (HICs) among residents and visitors alike. In New Zealand - an island nation with more than 14,000kms of coastline and numerous lakes and rivers - proximity to water abounds and most residents live within a one-hour drive of open water. Not surprisingly, aquatic recreation is highly popular in New Zealand and engrained in an outdoor lifestyle that attracts many visitors to New Zealand. In the year ending December 2015, more than 3.13 million overseas visitors came to New Zealand, a country of 4.6 million inhabitants (Statistics New Zealand, 2015a). A plethora of easy access, open water sites, combined with a temperate climate and warm summers, provide ample opportunities for participation in a diverse range of aquatic recreational activities. For example, in the year ending December, 2014, 1.3 million overseas visitors went to a beach, 400,000 had visited a marine park or reserve, 236,000 had rafted or kayaked, 476,000 had swum or surfed, and 328,000 had gone boating (Statistics New Zealand, 2015b).

Although participation in recreational aquatic activity is generally perceived as a positive indicator of a healthy lifestyle, it is not without risk (Moran, 2009). Drowning as a consequence of aquatic recreation is a significant cause of unintentional death among New Zealanders and visitors alike. While drowning and submersion injuries among residents of New Zealand have been the subject of research (for example, Gulliver & Begg, 2005; Langley et al., 2000; Chalmers & Morrison, 2003; McCool, Moran, Ameratunga & Robinson, 2008; McCool, Ameratunga, Moran, & Robinson, 2009; Moran & Webber, 2014a, 2014b, 2013), little is known about what water safety knowledge, attitudes, and behaviours international tourists bring to their aquatic recreation when holidaying in New Zealand.

A recent incident involving 11 tourists engaged in kayaking on a South Island lake that resulted in two fatalities and several hospitalisations (*New Zealand Herald*, 25<sup>th</sup> September 2015) is typical of the high profile reporting of such tragedies. From 2006-2015, 36 international tourists drowned in open water incidents in New Zealand, 4% of the fatal drowning toll (Water Safety New Zealand, 2015). Analysis of these drowning incidents indicate that the victims were from Asia (25%), Europe (19%), UK/Eire (19%), USA/Canada

(14%) and Australia (14%). Two thirds (67%) of the fatal drowning victims were male, and most victims (58%) were aged between 15-44 years. Rivers accounted for most fatalities (44%) followed by offshore waters (19%), beaches (14%), and lakes (11%). The most frequently reported activities prior to drowning were swimming (36%) and kayaking/rafting (14%). Further indication of the extent of tourist risk of drowning is evident in surf rescue statistics. As part of their coastal risk assessment, analysis of Surf Life Saving New Zealand (SLSNZ) Incident Report Forms indicates that, between July 2005 and June 2015, one in ten (9.5%) of the 12,000 rescues performed involved overseas visitors (Nick Mulcahy, personal communication, 29<sup>th</sup> January 2016).

International research on drowning suggests that tourists are a high risk group especially where aquatic recreation is easily accessed and an integral component of the culture. In the European Union, where 70% of Europeans spend their holidays close to water (Schmidt, 2002), drowning is the third highest cause of tourist injury comprising 36% of fatalities with an injury risk rate 15 times greater for tourists than for residents (Bauer et al., 2005). British children on holiday are reported to be at greater risk of drowning in a pool on holiday overseas than when at home, a consequence of lack of lifeguard supervision in hotels (Cornall, Howie, Mughal, Sumner, Dunstan, Kemp, & Sibert, 2005). A study of a popular tourist resort area in the Algarve, Portugal reported that almost three-quarters (72%) of the children admitted to hospital for submersion incidents in a swimming pool were visitors to the country (Tapadinhas, Rocha, Anselmo, Gonçalves, Barros, Alfar, & Maio, 2006). Drowning is the second highest cause of death (16%) behind motor vehicle deaths (27%) among US travellers overseas (Hargattan, Baker, & Guptill, 1991). A similar proportion of fatal drowning incidents (15%) occur among visitors to the US, a rate four times that of US residents (4%) (Sniezek & Smith, 1991). Drowning was also reported as a frequent injury death among US citizens abroad in low-to middle income central and south American countries, occurring at a rate three times (13% v 5%) higher than that of native citizens (Tonatello, Guse, & Hargarten, 2009), and the leading cause of death of US tourists visiting island nations (Hartung, Goebert, Taniguchi, & Okamoto, 1990). Other studies reporting high tourist drowning incidence in popular holiday destinations include the West Indies (Thompson, Ashley, Dockery-Brown, Binns, Curtis, Jolly et al., 2003), Thailand (Leggat & Leggat, 2003), and Israel (Hartmann, 2006).

In Australia, a study on beach drowning incidents suggested that a quarter of all fatalities from 2001-2005 were tourists (Morgan, Ozanne-Smith, & Triggs, 2008). Other Australian studies have suggested that the higher incidence of surf-related drowning among visitors reflects lack of water competency, surf safety knowledge, or experience at the beach (McKay, Brander, & Goff, 2014; Williamson, Hatfield, Sherker, Brander, & Hayen, 2012). The high incident rates have prompted calls for the introduction of water safety messages specifically targeting inbound tourists at airports and travel agencies (McKay et al., 2014; Leggat & Wilks, 2009; Mitchell, Williamson, & Chung, 2015; Wilks, Dawes, Pendergast, & Williamson, 2005; Wilks, DeNardi, & Wodarski, 2007). Most recently, Peden and colleagues have reported that, while international visitors to Australia had a lower rate of drowning than

residents in a 10-year period from 2002-2012, drowning prevention remains important so as to promote Australia as a safe holiday destination (Peden, Franklin, & Leggat, 2016).

Recreational drowning is a complex and multifaceted phenomena that has, at its heart, the way in which humans interact with the aquatic environment – what water safety knowledge, attitudes, and beliefs are brought to the beach, lake, or river (Moran, 2009). A perception widely held is that international visitors are at greater risk of drowning than the local population when visiting aquatic-oriented countries such as New Zealand because they lack water safety education and experience and are thus not prepared to make astute decisions about their safety in, on, and around water when holidaying. It is the purpose of this study to compare New Zealand residents understanding of water and boating safety with that of international visitors so as to determine how safety promotion can be best targeted to minimise risk of drowning and injury during aquatic recreation among those at greatest risk.

### **Method**

An online survey entitled “*Public Knowledge of SAR Prevention Measures and Attitudes towards Active Recreation Safety*” was commissioned by New Zealand Search and Rescue Council (NZSAR) and conducted by Distill Research Agency in August 2015. Its purpose was to gather information on public attitudes towards active recreation safety and knowledge of search and rescue prevention measures. In addition to gaining an understanding of New Zealander’s participation in, and perceptions of, recreational safety, information was sought on international tourist participation in, knowledge of, and attitudes towards water safety, boating safety, and outdoor safety. Major topics covered in the survey included participation in active recreation, advertising recall, attitudes and media use on each of the sub-sections. This study specifically focuses on the information obtained from the Survey pertaining to water and boating safety.

### **Participants**

Survey participants were sourced from online research panels located in New Zealand, Australia, US, UK, China, Japan, Germany, Korea, and Canada. The panels use complied with ICC/ESOMAR international code on market and social research (International Chamber of Commerce/ESOMAR, 2015). The survey sample was chosen to be representative of the New Zealand adult population aged 16 years and older resident in urban and rural locations. International tourists included in the survey were weighted by place of origin from the top eight markets - Australia, China, United States, United Kingdom, Japan, Germany, China, Korea, and Canada - as indicated by international visitor arrivals from September 2014 - August 2015 (Tourism New Zealand, 2015). Visitors from these eight countries accounted for 77% of New Zealand's international arrivals.

To qualify for the water safety section of the survey, the New Zealand residents needed to have participated in one of the following activities: swum at a beach, swum in a river, or swum in a lake. Of the 413 New Zealanders who completed the survey, 139 qualified for the water safety section of the survey and 137 qualified for the boating safety section. To qualify for the water safety survey, international tourists were required to have: visited New Zealand

in the last 12 months; not primarily travelled New Zealand as part of a guided tour, and swam at a beach, in a lake or river. Of the 181 tourists who had visited New Zealand in the previous 12 months and completed the survey, 99 qualified for the water safety analysis and 92 qualified for the boating safety section.

### **Research instrument**

An annual survey of road users developed by the Ministry of Transport, undertaken periodically since 1974 and annually since 1994, entitled *Public Attitudes to Road Safety*, was used as a benchmark research study on public safety attitudes and behaviours (Ministry of Transport, 2015). The online water safety survey was semi-structured with a mix of closed questions designed to generate descriptive quantitative data. An initial qualifying question sought information on the outdoor activity undertaken in New Zealand in the previous 12 months. The survey was then structured into 4 sections related to boating safety, water safety, outdoor safety, and knowledge and reach of safety messaging. The latter section focused on recall of safety messaging contained in the New Zealand Boating Safety Code, the Water Safety Code, and the Mountain Safety Code (Adventure Smart, NZSAR, n.d.). This study focuses on the findings of the boating and water safety sections of the survey and includes data on water safety promotion elicited in the fourth section of the survey.

The sections on boating and water safety contained questions designed to provide categorical and ordinal data. In the boating safety section, a 5-point Likert type scale ranging from strongly agree to strongly disagree was used to assess opinions on boating safety (for example, *the skipper of a boat is responsible for everyone on board*). This was followed by three specific questions related to lifejacket use (for example, *It's important to have lifejackets on board*) and three questions related to alcohol use when boating (for example, *Drinking alcohol while out boating decreases the ability to stay alert*). The water safety section was similarly structured with two opening questions containing a series of statements related to water safety and swimming activity that used the same 5-point scale responses (for example, *When swimming at a beach or river, it is okay to swim in ordinary clothing e.g., jeans, tee-shirt, etc.*). These questions were followed by two questions on rescue knowledge and confidence (for example, *do you think you could safely rescue others without putting yourself in danger?*) and two questions on child water safety and supervision (for example, *children need close attention when they are in or near water*). Both sections finished with a question related to the amount of publicity and advertising about boating and water safety.

### **Data analysis**

All data from the completed questionnaires were double entered into Microsoft Excel (2013). Descriptive statistics expressed as frequencies and percentages were used to describe or characterize all numerical variables including sociodemographic independent variables (such as gender, age, and ethnicity) and dependent variables (such as boating safety and water safety attitudes). Chi-square statistics tests of independence tested significance of associations among the frequencies of the influences of age, gender, and ethnicity against attitudes towards boating safety, water safety, child supervision, and alcohol use around water. All statistical analyses

were performed using a statistical analysis package (SPSS Version 23: Chicago, IL) with statistical significance set at  $p \leq .05$ .

## Results

The initial database of New Zealand residents ( $n = 413$ ) and international tourists ( $n = 181$ ), consisted of more females (NZ resident 56%, NZ tourists 53%), and similar proportions of young people (< 34 years NZ resident 28%, NZ tourist 29%), and older people (>35 years NZ resident 72%, NZ tourists 71%). Most tourists (65%) reported that Australia had been their country of residence in the twelve months prior to visiting New Zealand, followed in descending order by visitors from the UK 13%, US/Canada 10%, Asia (China, Korea, Japan) 8% and Germany 5%.

### Active recreation of residents and visitors

Table 1 shows the active recreation undertaken by residents and tourists in the previous twelve months. For New Zealand residents, swimming at the beach was the most popular active recreational activity (69%) followed by walking/hiking/tramping for longer than 3 hours duration (43%), and boating (32%). For international tourists, walking/hiking/tramping for longer than 3 hours duration (53%), swimming at a beach (40%), and boating (39%), were the most frequently reported activities.

**Table 1** Active recreation of New Zealand residents ( $n = 413$ ) and visitors ( $n = 181$ )

Activity	NZ Residents		NZ Visitors		$\chi^2$	$p$
Recreational boating	133	32%	70	39%	2.342	.126
Kayak, canoe, dinghy, waka trip	72	17%	38	21%	1.058	.304
Swim at a beach	284	69%	73	40%	42.429	<0.001*
Swim in a river	116	28%	38	21%	3.297	.069
Swim in a lake	121	29%	54	30%	.017	.895
Fishing/hunting	84	20%	37	20%	.001	.977
Walk, hike, trek > 3 hours	179	43%	96	53%	4.760	.029*
Overnight walk/hike /trek	50	12%	41	23%	10.788	.001*
Quad bike/4WD drive	41	10%	14	8%	.720	.246
Skiing/snowboarding	30	7%	25	14%	6.423	.010*
Mountain biking	29	7%	20	11%	2.698	.072
Mountain/rock climbing	35	9%	40	22%	21.176	<0.001*

\*Significant difference at 0.05 level

Significantly more New Zealand residents (69%) than tourists (40%) reported swimming at a beach ( $\chi^2 (3) = 42.429, p = <0.001$ ), but no further significant differences were found in other aquatic activities. Significantly more visitors than residents took part in the outdoor activities of hiking, overnight trekking, mountain biking, and rock climbing, although participation in aquatic activities was generally more frequently reported than land-based activities. No significant differences were found when type of activity undertaken in the previous 12 months was analysed by age group or sex.

### Water safety understanding and attitudes

Table 2 shows that most respondents had a sound understanding of water safety principles especially with regards to being properly prepared for open water aquatic activity. No

significant difference was found between residents and visitors in response to the general question on preparedness although more residents *strongly agreed* that a reasonable amount of preparation was required (NZ residents 56%, NZ tourists 41%).

Significant differences were found with regard to the necessity of having learned to swim prior to swimming at New Zealand beaches and rivers (Table 2, item 2) with more tourists than residents agreeing that it is safe to swim without having learned to swim ( $\chi^2(5) = 32.143$ ,  $p < 0.001$ ). Significantly more tourists than residents also agreed that they would swim at a non-patrolled, unsafe beach (Table 2, item 3) ( $\chi^2(5) = 21.832$ ,  $p < 0.001$ ), would swim in everyday clothing (Table 2, item 6) ( $\chi^2(5) = 28.293$ ,  $p < 0.001$ ), and significantly fewer visitors would always swim between the patrol flags (Table 2, item 8) ( $\chi^2(5) = 18.020$ ,  $p = .003$ ). No significant differences were found when water safety attitudes related to preparedness were analysed by age group or sex.

**Table 2** Water safety attitudes of New Zealand residents and visitors

	<u>NZ resident</u>			<u>NZ visitor</u>		
	Agree n/%	Disagree n/%	Neutral/ Don't know	Agree n/%	Disagree n/%	Neutral/ Don't know
1. Swimming in New Zealand beaches and rivers requires a reasonable amount of preparation. You need to have learned to swim, you need to use safe and correct equipment and you need to know weather/water conditions before getting in.	117 84%	9 7%	13 9%	72 73%	8 8%	19 19%
2. It's safe to swim in New Zealand's beaches and rivers without having learned to swim	9 6%	119 86%	11 8%	29 29%*	54 55%	16 16%
3. If you are at a beach without patrol flags flying and water conditions appear unsafe, you'll swim anyway	19 14%	105 76%	15 11%	25 25%*	48 49%	26 26%
4. It's safe to swim in a beach where no other people are present	23 17%	83 60%	33 24%	53 54%	27 27%	19 19%
5. You should use safe and correct equipment when swimming in New Zealand. For instance you should always wear beach attire, or if you are boogie boarding, you need a leash and fins too.	114 82%	9 7%	16 12%	77 78%	11 11%	11 11%
6. When swimming at a beach or river, it is okay to swim in ordinary clothing e.g. jeans, tee-shirt, etc.	10 7%	119 86%	10 7%	27 27%*	57 58%	15 15%
7. You'll spend time checking weather & water conditions before entering the water	84 60%	18 13%	37 27%	75 76%	8 8%	16 16%
8. You'll always swim between the flags if possible	128 92%	2 1%	9 7%	83 84%*	6 6%	10 10%

\* Significant difference at 0.05 level



Table 3 shows responses to statements related to awareness of dangers in the aquatic environment. Most visitors and residents responded positively towards statements with regard to entering the water safely although significantly fewer visitors than residents agreed on entering shallow water feet first (Table 3, item 2) ( $\chi^2 (5) = 15.226, p = .009$ ). Fewer visitors than residents disagreed that alcohol consumption enhanced risk of trouble around water (Table 3, item 4) ( $\chi^2 (5) = 23.505, p = <0.001$ ).

**Table 3** Water safety attitudes of New Zealand residents and visitors

	<u>NZ resident</u>			<u>NZ visitor</u>		
	Agree n/%	Disagree n/%	Neutral/ Don't know	Agree n/%	Disagree n/%	Neutral/ Don't know
When swimming somewhere unknown, you'll enter the water feet first	125 90%	2 1%	12 9%	81 82%	5 5%	13 13%
When entering shallow water, you'll enter the water feet first	132 95%	1 1%	6 4%	83 84%*	2 2%	14 14%
When swimming somewhere new I look for safety and warning signs or flags	124 89%	3 2%	12 9%	90 91%	12 9%	7 7%
There is not much chance of getting into trouble in the water after drinking alcohol	7 5%	126 91%	6 4%	15 15%	72 73%*	12 12%
I confidently know how to identify a rip at a surf beach	68 49%	48 35%	23 17%	40 40%	34 34%	25 25%
When swimming in a surf beach I always have a plan if I get caught in a rip	72 52%	24 17%	43 31%	55 56%	17 17%	27 27%
If you get caught in a rip and are in trouble, you should firstly let the rip sweep you along until the current weakens. Then when the current has subsided, you should swim parallel to the shore for 30-40 metres before returning to shore	92 66%	3 2%	44 32%	64 65%	4 4%	31 31%

\* Significant difference at 0.05 level

No significant differences were found in resident/visitor understanding of surf safety. Less than half of either residents (49%) or tourists (40%) considered that they could confidently identify a rip current at a surf beach and many did not have a plan if caught in a rip (NZ residents 31%, NZ tourists 27%) in a rip or didn't know how to get out of it (NZ residents 32%, NZ tourists 31%). Significant gender differences were evident in responses related to confidence in recognising a rip current (males 53%, females 39%) ( $\chi^2 (2) = 9.683, p = .043$ ) and knowledge of rip escape (males 73%, females 60%) ( $\chi^2 (2) = 15.547, p = .008$ ).

Fewer visitors reported having supervised children under the age of 15 years around water in the previous twelve months (NZ residents 49%, NZ tourists 34%). When those who had supervised children aquatic activity were asked their opinions about supervision, significantly more residents than visitors believed it was important to set rules around safe play in the water (NZ residents 100%, NZ tourists 91%) ( $\chi^2 (2) = 11.637, p = .003$ ), and that children needed close attention in the water (NZ residents 100%, NZ tourists 88%) ( $\chi^2 (3) = 10.374, p$

= .016). No significant differences in attitudes towards child supervision were evident when responses were analysed by gender or age.

When asked about their knowledge of rescuing others, no significant differences were evident in visitor and residents education about safe ways of rescuing others, although more visitors reported having learned rescue techniques (NZ residents 37%, NZ tourists 49%). Similarly, no differences were evident in rescue training by age group or sex. No significant differences were found in respondents' belief in their capacity to rescue someone safely although more visitors than residents believed they could (NZ residents 29%, NZ tourists 40%). One third (32%) of residents compared to one quarter (24%) of visitors didn't know whether they could rescue someone without putting themselves in danger. When confidence in rescue competency was analysed by sex, significantly more males than females thought that they could safely rescue others (males 44%, females 26%) ( $\chi^2(2) = 8.375, p = .015$ ). No differences were discernible in rescue training or confidence when analysed by age group.

### Boating safety understanding and attitudes

Participants were asked to respond to a series of statements on boat safety based on the New Zealand Boating Safety Code relating to preparation and skipper responsibility (Table 4). Significant differences were found in responses to all but one boating safety statements. Significantly fewer visitors than residents agreed on checking the weather forecast even if the weather is fine ( $\chi^2(4) = 33.532, p = <0.001$ ), fewer agreed that you should plan for weather and sea state change ( $\chi^2(4) = 50.037, p = <0.001$ ), fewer agreed that two communication modes were required ( $\chi^2(4) = 18.760, p = .002$ ), and more agreed that New Zealand weather was very predictable ( $\chi^2(4) = 31.296, p = <0.001$ ). Significantly more residents agreed that the skipper is responsible for everyone on board ( $\chi^2(4) = 25.297, p = <0.001$ ), is responsible for the safe operation of the vessel ( $\chi^2(4) = 28.384, p = <0.001$ ), and should operate within the limits of their experience ( $\chi^2(4) = 37.710, p = <0.001$ ).

**Table 4** Boating safety attitudes among New Zealand residents and visitors

	<u>NZ resident</u>			<u>NZ visitor</u>		
	Agree n/%	Disagree n/%	Neutral/ Don't know	Agree n/%	Disagree n/%	Neutral/ Don't know
Before going boating, you should check the local marine weather forecast – even if the weather is fine	136 99%	0	1 1%	76 83%*	2 2%	14 15%
New Zealand's weather is usually very predictable	43 31%	76 56%	18 13%	36 39%*	21 23%	35 38%
While boating in New Zealand you should plan for and expect both weather and sea state changes	133 97%	2 2%	2 2%	75 82%*	3 3%	14 15%
You should take two separate waterproof ways of communicating when boating	128 93%	0	9 7%	70 76%*	5 5%	17 19%
The skipper of a boat is responsible for everyone on board	125 91%	5 4%	7 5%	72 78%*	10 11%	10 11%
The skipper of a boat is responsible for the safe operation of the boat	132 96%	2 2%	3 2%	78 85%*	3 3%	11 12%

It's okay for a skipper to test the limits of a vessel every now and then	30	80	27	27	40	25
A skipper should operate a vessel within the limits of their experience	22%	58%	20%	29%	43%	27%
	135	1	1	75	5	12
	97%	1%	1%	82%*	5%	12%

\* Significant difference at 0.05 level

Additional questions on lifejacket use and alcohol consumption elicited further differences between resident and tourist responses to boating safety. While almost all participants *strongly agreed* that lifejackets should be carried on board vessels less than 6m in length (NZ residents 96%, NZ tourists 87%), significantly fewer visitors ( $\chi^2 (2) = 6.745, p = .034$ ) agreed that they should be worn at all times (NZ residents 93%, NZ tourists 84%). Almost all respondents also believed that lifejackets should be available on board vessel more than 6m in length but no significant difference was evident in agreement that they should be worn (NZ residents 82%, NZ tourists 76%).

Most residents and visitors disagreed with the statement that the risk of a boating accident would not increase after drinking alcohol if you were careful (NZ residents 87%, NZ tourists 83%). Similarly, most residents and visitors disagreed that alcohol had no effect on alertness and awareness when boating (NZ residents 87%, NZ tourists 78%). When asked about blood alcohol levels while boating when compared with permissible levels when driving a motor vehicle, slightly more than half of both residents (52%) and tourists (59%) considered that the acceptable levels should be the same, slightly more residents thought that the level should be less (NZ residents 40%, NZ tourists 29%), and a small proportion of both (5%) thought it should be higher.

### Promotion of safety messages

When asked whether the advertising of water safety should be increased, decreased, or stay the same, significantly more residents than visitors (NZ residents 79%, NZ tourists 64%) considered that the level of media promotion should increase ( $\chi^2 (3) = 11.308 p = .010$ ). When asked whether the advertising of boating safety should be increased, decreased, or stay the same, no significant differences were discernible between residents and visitors with almost two thirds of respondents believing that it should be increased (NZ residents 64%, NZ tourists 64%) considered that the level of media promotion should increase ( $\chi^2 (3) = 11.308 p = .010$ ). Most also agreed that advertising the use of lifejackets would help boating safety (NZ residents 89%, NZ tourists 82%). No significant differences in safety promotion were evident by sex, age group, or ethnicity.

### Discussion

The primary purpose of this study was to compare understanding of, and attitudes towards, water safety during aquatic recreation among New Zealand residents and international visitors. Axiomatic wisdom suggests that, in an aquatic-oriented country such as New Zealand, international visitors may be at greater risk of drowning than local residents because of their lack of water safety knowledge and experience of open water environments that are easily accessible and extensively used.

Evidence of the popularity of aquatic activity was affirmed in the results of this survey. Swimming at a beach was the most popular outdoor activity for New Zealanders and tourists alike (NZ residents 69%, NZ tourists 40%). Given this popularity, it is encouraging to note that most residents and visitors (NZ residents 84%, NZ tourists 73%) agreed that swimming in beaches and rivers required a reasonable amount of preparation but it is a concern that significantly more visitors than residents (NZ residents 6%, NZ tourists 29%) felt it was safe to swim in these open water locations without having learned to swim. Further concerns are raised in relation to beach safety attitudes among tourists. First, most New Zealanders (76%) reported that they would not swim at a beach where patrol flags were not flying compared with less than half of international tourists (49%). Similar proportions were found in an Australian study with more residents (91%) than international students (51%) reporting the need to swim between the flags at a patrolled beach (Ballantyne et al., 2005). Second, most New Zealand visitor respondents (54%) agreed that it was safe to swim at a beach where no other people were present; fewer than one quarter (23%) of residents considered it safe. Third, significantly more residents (86%) considered it unsafe to swim in everyday clothing; considerably fewer visitors (58%) considered it unsafe. Fourth, almost all residents (92%) strongly agreed that they always swim between the flags but significantly fewer international tourist (84%) strongly agreed that they would. Similar findings were reported in an Australian study of attitudes and knowledge of beach safety where the odds of international tourists making a safe swimming choice were three times lower than usual beachgoers and rural inland residents (Williamson et al., 2012).

When asked about their understanding of surf safety, both residents and visitors alike demonstrated a poor understanding of rip currents. Less than half of residents (49%) and even fewer tourists (40%) were confident that they could identify a rip at a surf beach. Similar proportions were reported in Australia with almost half (48%) of Australian beachgoers correctly identifying a rip when shown a photograph compared with less than one third (29%) of international tourists (Williamson et al., 2012). Furthermore, the same study also reported moderate to high levels of confidence among residents (60%) in their ability to identify a rip while only a small proportion (15%) of international tourists felt the same level of confidence. Less than half (43%) of the New Zealand residents and international tourists (38%) agreed with the Surf Life Saving New Zealand recommended escape strategy and only half of residents (52%) and tourists (56%) agreed that they had a plan of how to escape if caught in a rip. These findings challenge accepted beliefs of the protective value of local knowledge and the belief that tourists should seek local advice when at an unfamiliar beach. On the basis of this evidence, it would appear prudent to promote rip safety education to residents and visitors alike. In addition, seeking the advice of surf lifeguards would appear the most reliable source of local information for all beach users, irrespective of resident/visitor status.

Other significant differences in water safety attitudes between residents and visitors related to water entry, alcohol use, and child supervision. Significantly fewer visitors than residents thought they should enter shallow water feet first (NZ residents 95%, NZ tourists 84%), fewer disagreed that alcohol consumption prior to entering the water increased risk (NZ residents 91%, NZ tourists 73%), and fewer thought that children needed close attention when

in the water (NZ residents 100%, NZ tourists 88%). Reasons for these differences and their possible consequences are not well understood. It has been postulated that safety considerations around water diminish when tourists are in holiday mode with tourists likely to engage in increased alcohol consumption, pay less attention to child supervision, and be more tempted to engage in risk taking activities (The Lifesaving Foundation, 2011; Williamson et al., 2012). Further research is required to substantiate/refute such speculation.

Boating was the second most popular aquatic activity among tourists (NZ tourists 39%, NZ residents 32%) and, because of this level of engagement, some of the boating safety perceptions of visitors are cause for concern. In terms of preparation for boating activity, significantly fewer visitors thought that they should check the local marine forecast before boating (NZ residents 99%, NZ tourists 83%) or that they should plan for weather and sea change (NZ residents 97%, NZ tourists 82%). New Zealand residents were also more likely than visitors to be aware of the skipper's responsibility for the safe operation of the vessel (NZ residents 96%, NZ tourists 85%), identify the responsibility of the skipper for everyone on board (NZ residents 91%, NZ tourists 78%), and operate the craft within the limits of their experience (NZ residents 97%, NZ tourists 82%).

Perhaps the difference in understanding of the role of the skipper is not surprising given the relatively high ownership of water craft among New Zealanders. For example, one quarter of Auckland residents were estimated to own a boat in 2012, a proportion equating to 132,000 boats in the Auckland region alone (Beca Infrastructure, 2012). It may also be the case that fewer tourists assume the responsibility as skipper of a craft and are more likely to be in a subsidiary role or under supervision on the water when holidaying. Of greater concern is the difference in boating safety perceptions around the lifejacket use with fewer tourists seeing the necessity of wearing of lifejackets at all times on the water (NZ residents 93%, NZ tourists 84%). Recent media and television campaigns promoting the wearing rather than stowage of lifejackets may account for the positive safety perception of residents but other sources of media (such as social websites, online travel sites, entertainment websites) may have better reach among tourists. The continued promotion of safety brochures such as the Boating Safety Code (Adventure Smart NZSAR, n.d.) in locations such as airports, hotels, public buildings, and tourist information services is recommended but additional safety messaging around lifejacket use may be warranted.

### **Limitations**

While the results of this study provide valuable insight into the nature of drowning risk among residents and international tourists alike, the findings should be treated with some caution. First, because of the cross sectional nature of the survey, only associations rather than causality can be determined. Second, the survey was only available in English, those with English as a second language may have been disadvantaged in interpreting and answering the questions accurately. To minimise translation difficulties, multilingual surveys may best be developed for future surveys of overseas visitors. Third, use of self-reported data on safety behaviours may have introduced bias that may not reflect actual behaviour (Robertson, 1992; Mickalide, 1997; Nelson, 1996). Fourth, the survey was conducted online and thus may have not been

representative of the New Zealand resident or tourist populations. Further on-site surveys and observational studies of residents and tourists at popular aquatic recreation sites may help address these latter two limitations.

### Conclusions

Many international tourists are attracted to New Zealand because of its readily-available open water environment and its plethora of aquatic recreational activity. This study, with its focus on swimming and boating, has suggested that gaps in the understanding of safety in, on, and around water among tourists holidaying in New Zealand may account for their over representation in drowning and rescue statistics. The study has however questioned the perceived preventive value of local knowledge of water hazards such as rip currents at surf beaches since the findings suggest that neither residents nor visitors have a good understanding of this frequently-occurring hazard. Greater public education for visitors and locals via expert rescue, boating, and water safety organisations would help address such shortcomings. While exposure to risk of drowning is omnipresent in an island nation with a strong tradition of aquatic recreation, the promotion of water safety for all must be pursued with vigour, the threat to the health of host and visitor alike is too great to be left to chance.

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