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NEW ZEALAND

Date: 19 May 2016

To: Contractor

From: Allan Mundy

Subject: Project Brief: Surf Education Review of Program First Yearly Report

1. Introduction

Surf Life Saving New Zealand (SLSNZ) delivers Surf Education programmes to school students to develop their surf safety awareness and understanding, and thus reduce their risk of drowning or injury. Surf Education is delivered by surf lifeguards through two different models: Beach Education, a full day programme at the beach with theory and practical components, and Surf to School, a condensed classroom-based programme with optional pool session.

Surf Education has been delivered to over 840,000 New Zealand school children since it began in 1993, and currently reaches over 40,000 students each year (Surf Life Saving New Zealand, 2014a). The programmes provide a unique learning opportunity and teach children how to enjoy the coastal environment safely, in the context of their local beach or at their school. However, there has been little systematic evaluation of the programmes to determine whether they are delivering the learning outcomes with maximum impact and efficiency.

This project therefore seeks to identify the most effective and efficient method of delivery to achieve Surf Education learning outcomes, and validate this by benchmarking it against existing programmes.

1.1. Background

Drowning is the third highest cause of unintentional death in New Zealand (Accident Compensation Corporation, 2005). Children aged 5-14 years old comprise 6% of annual drowning deaths (Water Safety New Zealand, 2014). In addition, on average 35% of those rescued on New Zealand beaches every year are aged between 6 and 15 (Surf Life Saving New Zealand, 2014b).

Children are particularly vulnerable to the hazards present at beaches and other aquatic environments. These include deep water, rips and other strong currents, large waves, and the effects of heat and cold. Despite this, children age 5 to 14 currently comprise the lowest drowning age bracket in New Zealand. This may indicate that existing water safety messaging is having an impact, or that children are generally swimming under effective supervision.

Educating children has been shown to have a lasting impact on behavioural and safety practices later in life (Quan et al., 2007). Beach Education and Surf to School are popular programmes that receive positive feedback from schools and staff involved. However, with large demands on students' time and financial constraints on both schools and SLSNZ, it is essential that these programmes be run with maximum efficiency and effectiveness.



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Beach Education ('Beach Ed') commenced in 1993 and is funded by a user pays contribution as well as being subsidised by money from the New Zealand Lottery Grants Board (via Water Safety New Zealand (WSNZ)). This involves children being educated in a beach environment, based around a Surf Life Saving Club facility over a period of 5 hours. Surf to School is a more recent evolution of the programme, and was developed to provide an opportunity for landlocked rural schools or those under financial constraints to gain some surf safety education in the classroom or school pool. It condenses the delivery time for the key safety messages. As part of the process of investigating if there is a better model, the content and delivery models of both these programmes will be assessed during this project.

1.2. Aim

The project aim was to identify the most effective and efficient method of delivery to achieve Surf Education learning outcomes. The outputs will be recommendations to optimise the content and delivery models of national Surf Education programmes into the future.

1.3. Objectives

To achieve this aim the following objectives must be met:

- Identify international best practice safety educational models for children aged 5 to 14.
- Use this to develop the theoretical concept of an 'ideal' model applicable to the New Zealand environment that is scalable nationally and delivers the best return on investment.
- Evaluate this theoretical model in practice against the current content and delivery models of Beach Education and Surf to School. Return on investment will be judged in terms of reducing the risk of drowning and injury through increased (retained) student knowledge and competencies.
- Identify the delivery model(s) best suited to delivering surf safety education learning outcomes across New Zealand's socially and geographically diverse school education sector through a return on investment lens.

2. Guiding principles

In order to achieve the objectives, this review must be based on evidence that is systematically gathered through a range of relevant quantitative and qualitative methods. It is to draw upon relevant research and national and international best practice standards for safety education, as well as information from a wide range of stakeholders, including water safety practitioners, teachers, parents and students.

The review should consider all options when assessing the programmes and recommending any changes or improvements for the future. This may include non-traditional approaches and/or the use of different facilities, environments or messages.





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3. Method

3.1 International best practice research

This has been undertaken by Dr Kevin Moran, ONZM, Principal Lecturer in Health and Physical Education, Faculty of Education, The University of Auckland, New Zealand and associates.

3.2 Development of 'ideal' model concept(s)

The use of a Modified Stratified Sample will be employed to measure the effect size of the student's specific learning outcomes over the course of the programme. A Student Survey consisting of a Pre Survey and Post Survey (Appendix 1a) will be used to assess the effects size shift of the SLO's. This will be made up of a series of multiple answer questions, the students will answer either online and or at the place of the programme.

A modified "Surf Swimming Questionnaire" Willcox-Pidgeon, S. (2015). Youth knowledge, attitudes, behaviour and perception of drowning risk in the surf environment. Unpublished masters thesis, University of Auckland, Auckland, New Zealand.

3.3 The Control

The Survey has also been offered to a selection of schools that previously have not taken place in any Beach Education from Hamilton. These schools will be selected to generate geographically- and decile-matched schools for comparison as best as possible with like schools currently taking part in Beach Education. The results are still to come in .

3.4 Development of Programmes and resources

Following the Surf Education Review and Literature review carried out by SLSNZ Education Staff and by Dr Kevin Moran, three key conceptual considerations were accepted.

1. Educational outcomes for the learning of "novel out door based concepts" are best done in that environment at which the concept being learnt exists.
2. The adoption of a more student-centred problem solving pedagogy must be undertaken in all Surf Survival education to better fit with the learning styles of our children today.
3. The need for a much simpler cleaner set of messages around rip identification and self-preservation when in a rip current is essential in lowering the coastal drowning statistic.

To incorporate these key concepts into our Surf Education programmes, the following developments were undertaken.

Benchmarking new concepts against alternative options (including existing programmes) over 2015/16 season.

By using a Pre and Post course survey we will capture data on actual learning out comes from each of the courses being observed. (Appendix 1b) .The resulting effect size generated by these comparisons will be used to map the learning outcomes of the students on the particular course and review the effects of the new material on the course.





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SLSNZ has reworked their internal Beach Instructor Education training pre-season to incorporate best and latest teaching practice techniques to better improve upon the surf survival messages being covered in the programmes.

SLSNZ was unable to develop a computer game focused on an interactive rip simulation that will be made available to schools and students engaged in the beach education programmes. This became too expensive given the budget and the project has been paused. The developer has since placed the program software on a free computers programming developers web site for the computer community to continue to work on and when completed it will be gifted back to us to use. We have however secured the free use of a similar computer interactive game for a student that not only focuses on water safety knowledge and skills but across a wider context of safety around the home and greater environment. <http://www.everydaylifesaver.com.au/desktop.php>

The reworking of the Rip identification education material both in schools to offer a cleaner more understandable message of the dangers of the rip has been completed. The new material will assist in how to identify when you are in one and then what to do to exit one before being swept out to sea and having to rely on swimming skills.

The WSNZ lower decile schools a subsidy to cover travel and associated costs enabling them improved access to the Beach Education Programmes nearest to them was implemented with great success having a total of 13721 students gain access to varying amounts of the pool.

Time line for the implementation

Development of 'ideal' model = curriculum/ how taught, August 2015

Resource Redevelopment (including interactive rip game, RIP material) August 2015

Development of the Statistics Programme to evaluate September 2015

Training Surf Ed instructors in the 'ideal' concept" September 2015

Testing of 'ideal' concept = benchmarking against alternative options (including existing programmes) October 2015 to February 2016

3.5 Survey Results 2015/16 Beach Education Season Summary

The survey questions are in Appendix 1.a. The entire result Tables are in Appendix 1.b.

The results from the surveys have been used to measure two areas within our program. Firstly the effect size of learning shifts in the students following their attendance at a beach education day. Secondly the information was analysed and then used to inform SLSNZ of the learning area within the program that have not generated the desired learning outcomes. This feedback has directly informed us of which particulars in the beach Education Program needed to be worked on prior to the beach education season next year.





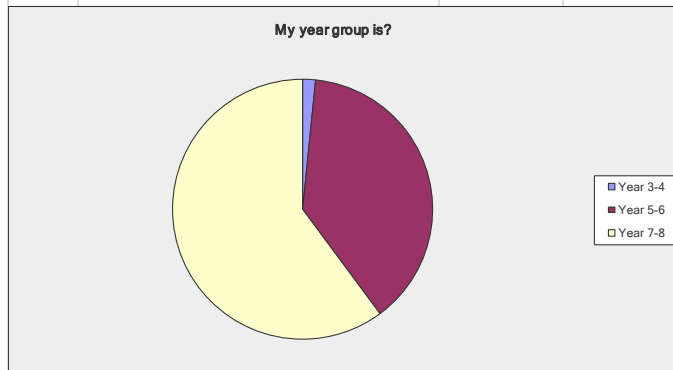
It is planned this survey tool now completed will be applied in Surf 2 Schools as well as Beach Education into the future. The ability to break down the data and target particular areas within the learning program and the instructor delivery will ensure a continued culture of improvement exist within Surf Life Saving New Zealand's Education Teams and Programs.

Following are those questions that generated significant identifiable trends, along with the narrative to explain the significance.

The first few tables are representative information of the surveyed groups.

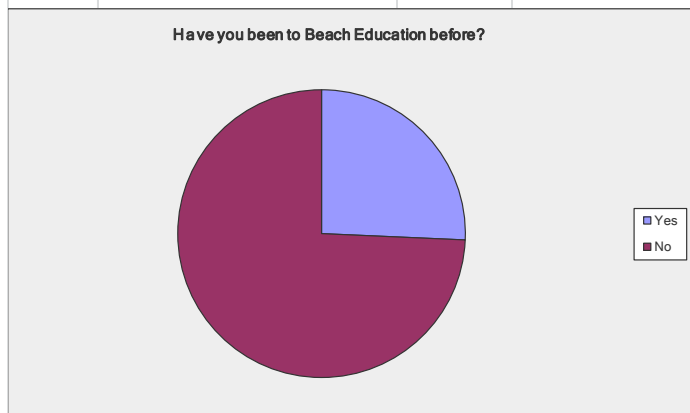
Surf Safety Survey - Beach Ed Year Group

My year group is?		
Answer Options	Response Percent	Response Count
Year 3-4	1.6%	2
Year 5-6	38.3%	49
Year 7-8	60.2%	77
<i>answered question</i>		128
<i>skipped question</i>		1



Surf Safety Survey - Before Beach Ed

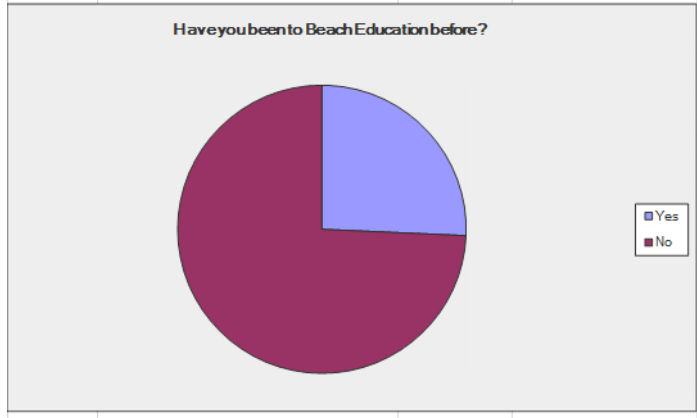
Have you been to Beach Education before?		
Answer Options	Response Percent	Response Count
Yes	25.7%	46
No	74.3%	133
<i>answered question</i>		179
<i>skipped question</i>		7





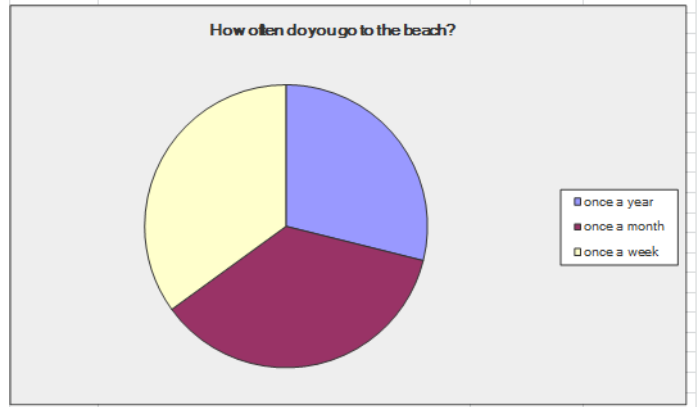
Surf Safety Survey - Before Beach Ed

Have you been to Beach Education before?		
Answer Options	Response Percent	Response Count
Yes	25.7%	46
No	74.3%	133
<i>answered question</i>		179
<i>skipped question</i>		7



Surf Safety Survey - Before Beach Ed

How often do you go to the beach?		
Answer Options	Response Percent	Response Count
once a year	28.9%	52
once a month	36.1%	65
once a week	35.0%	63
<i>answered question</i>		180
<i>skipped question</i>		6

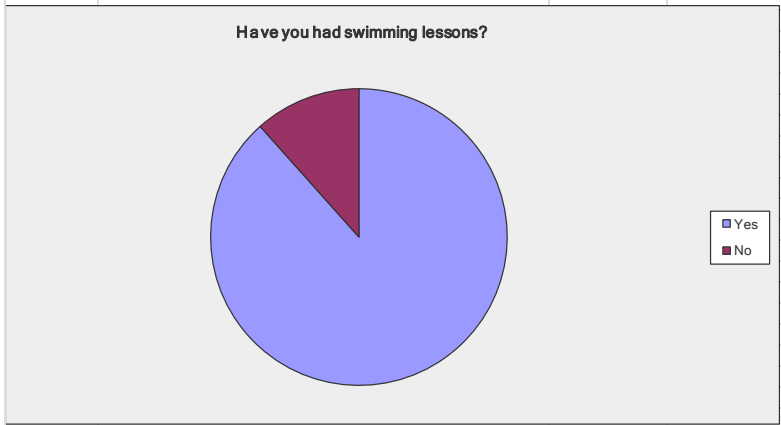




Surf Safety Survey - Before Beach Ed

Have you had swimming lessons?

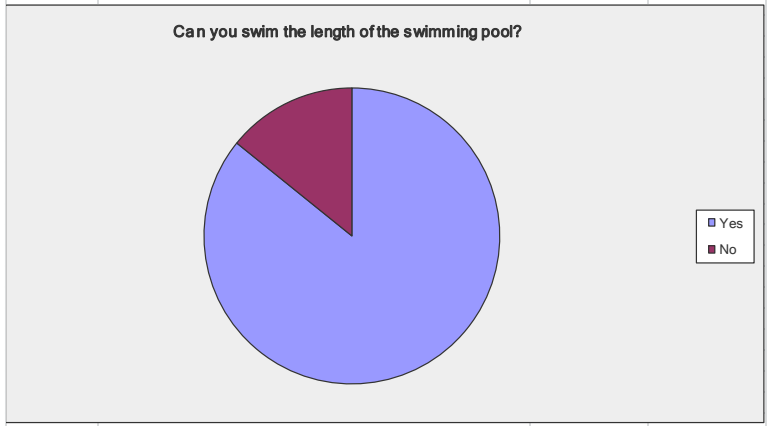
Answer Options	Response Percent	Response Count
Yes	88.4%	160
No	11.6%	21
answered question		181
skipped question		5



Surf Safety Survey - Before Beach Ed

Can you swim the length of the swimming pool?

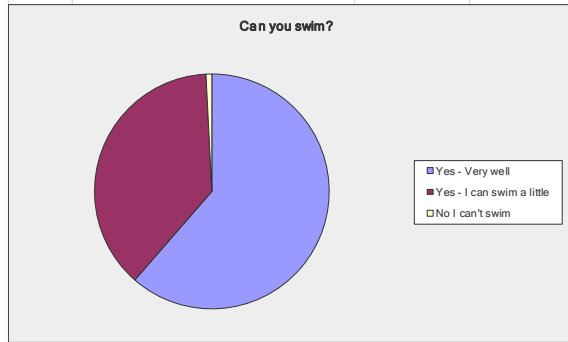
Answer Options	Response Percent	Response Count
Yes	85.8%	157
No	14.2%	26
answered question		183
skipped question		3





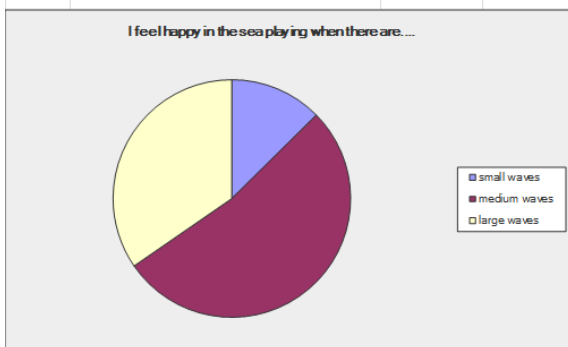
Surf Safety Survey - After Beach Ed

Can you swim?		
Answer Options	Response Percent	Response Count
Yes - Very well	61.4%	78
Yes - I can swim a little	37.8%	48
No I can't swim	0.8%	1
<i>answered question</i>		127
<i>skipped question</i>		2



Surf Safety Survey - After Beach Ed

I feel happy in the sea playing when there are...		
Answer Options	Response Percent	Response Count
small waves	12.6%	16
medium waves	52.8%	67
large waves	34.6%	44
<i>answered question</i>		127
<i>skipped question</i>		2

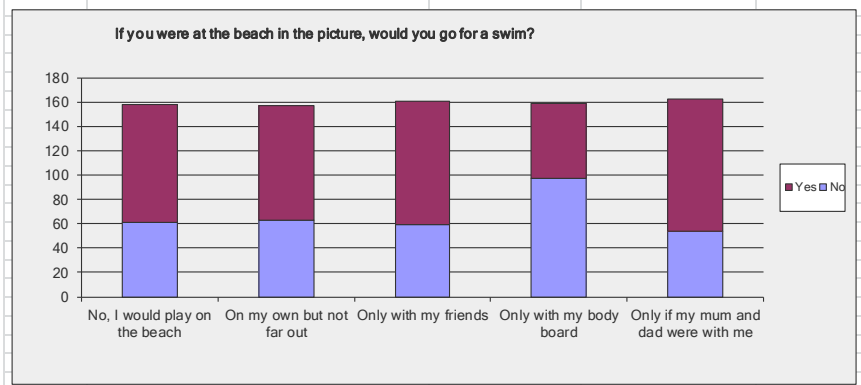




The following tables are comparative between the students prior to attending a beach education day and after the beach visit. The percentage shifts in attitudes, understanding of the risks and subsequent mitigating behaviour required to minimise the risk are surveyed.

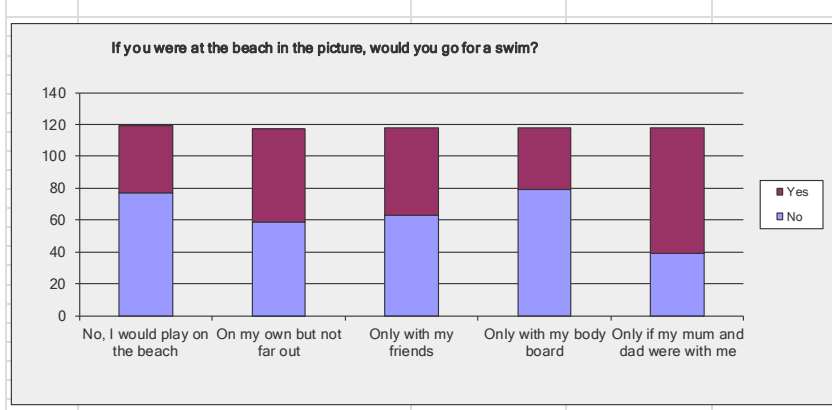
Surf Safety Survey - Before Beach Ed

If you were at the beach in the picture, would you go for a swim?			
Answer Options	Yes	No	Response Count
No, I would play on the beach	97	61	154
On my own but not far out	94	63	156
Only with my friends	102	59	157
Only with my body board	62	97	154
Only if my mum and dad were with me	108	54	155
answered question			160
skipped question			26



Surf Safety Survey - After Beach Ed

If you were at the beach in the picture, would you go for a swim?			
Answer Options	Yes	No	Response Count
No, I would play on the beach	42	77	117
On my own but not far out	58	59	117
Only with my friends	55	63	118
Only with my body board	39	79	117
Only if my mum and dad were with me	79	39	118
answered question			120
skipped question			9



These tables reflect the thoughts of the students describing their actions referring to a large surf beach. There has been an overall %10 shift towards what we would consider to be appropriate safety behaviour following the beach Ed visit. Although this result is significant we are reviewing the teaching program of this unit to increase the shift, as between half to one third of the respondents still indicate unacceptable risk taking in this environment.





Surf Safety Survey - Before Beach Ed

In the picture, what safety messages would you tell the children?		
Answer Options	Response Percent	Response Count
1.	100.0%	152
2.	94.1%	143
3.	81.6%	124
4.	69.1%	105
5.	63.2%	96
answered question		152
skipped question		34



Surf Safety Survey - After Beach Ed

In the picture, what safety messages would you tell the children?		
Answer Options	Response Percent	Response Count
1.	100.0%	40
2.	100.0%	40
3.	85.0%	34
4.	75.0%	30
5.	72.5%	29
answered question		40
skipped question		89



Surf Safety Survey - Before Beach Ed

What four things should you do to keep safe on the beach?		
Answer Options	Response Percent	Response Count
1.	100.0%	149
2.	92.6%	138
3.	75.8%	113
4.	72.5%	108
answered question		149
skipped question		37

Surf Safety Survey - After Beach Ed

What four things should you do to keep safe on the beach?		
Answer Options	Response Percent	Response Count
1.	100.0%	39
2.	94.9%	37
3.	89.7%	35
4.	87.2%	34
answered question		39
skipped question		90

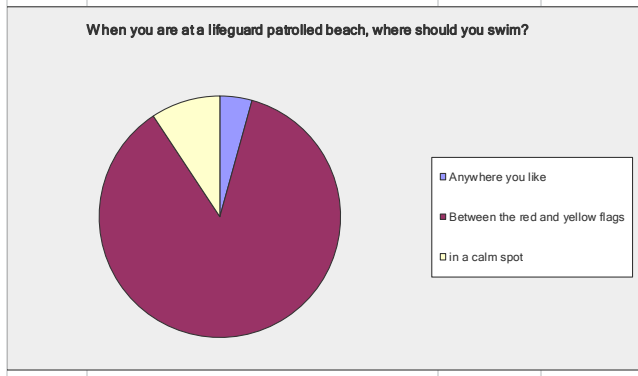
Post beach Education the students were able to recall between %5 to %10 more surf safety rules.





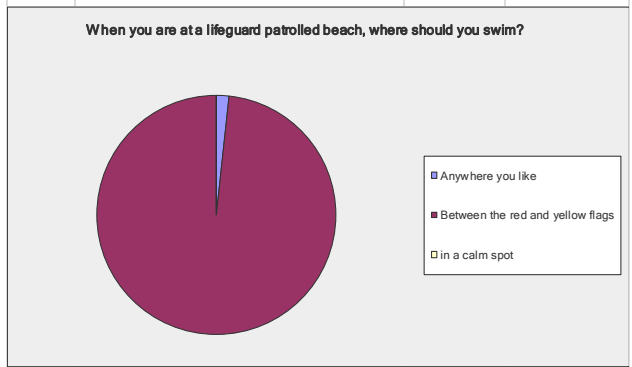
Surf Safety Survey - Before Beach Ed

When you are at a lifeguard patrolled beach, where should you swim?		
Answer Options	Response Percent	Response Count
Anywhere you like	4.3%	7
Between the red and yellow flags	86.4%	140
in a calm spot	9.3%	15
answered question		162
skipped question		24



Surf Safety Survey - After Beach Ed

When you are at a lifeguard patrolled beach, where should you swim?		
Answer Options	Response Percent	Response Count
Anywhere you like	1.7%	2
Between the red and yellow flags	98.3%	116
in a calm spot	0.0%	0
answered question		118
skipped question		11



These tables indicate an overwhelming positive response with the students indicating that swimming between the flags is almost the only option when coming to the beach, especially when flags are in sight. With results like this the aspirational goal of turning the kids into the Surf Safety advocates in the home could be realised in the future. Next year a following question will survey beach selection behaviour with a patrolled beach verses a non-patrolled beach.

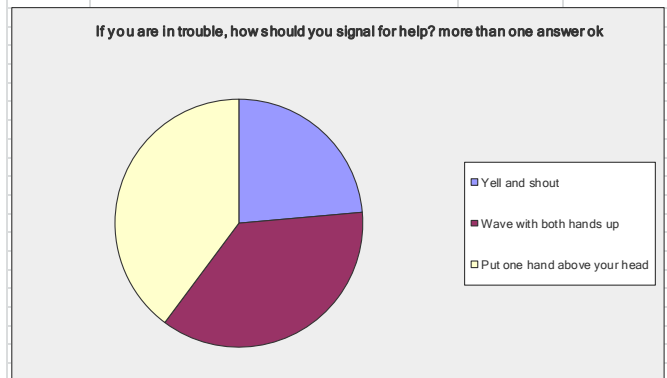




Surf Safety Survey - Before Beach Ed

If you are in trouble, how should you signal for help? more than one answer ok

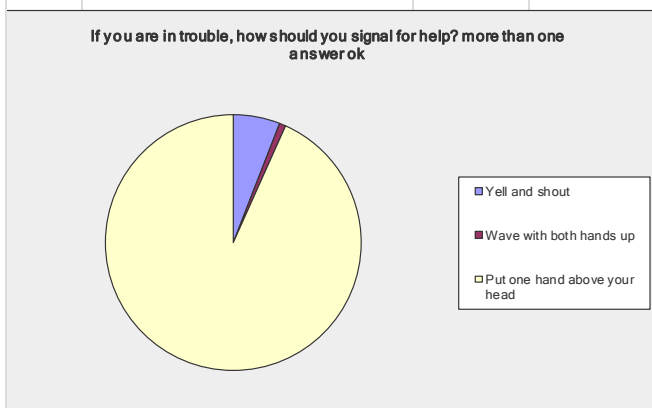
Answer Options	Response Percent	Response Count
Yell and shout	23.6%	38
Wave with both hands up	36.6%	59
Put one hand above your head	39.8%	64
answered question		161
skipped question		25



Surf Safety Survey - After Beach Ed

If you are in trouble, how should you signal for help? more than one answer ok

Answer Options	Response Percent	Response Count
Yell and shout	5.9%	7
Wave with both hands up	0.8%	1
Put one hand above your head	93.2%	110
answered question		118
skipped question		11



The major shift of %54 in signalling for help is vital. The result of %93 knowing how to signal for help represents the students knowing how to begin to take charge of a situation and initiate a rescue far sooner than what may have been in the past.

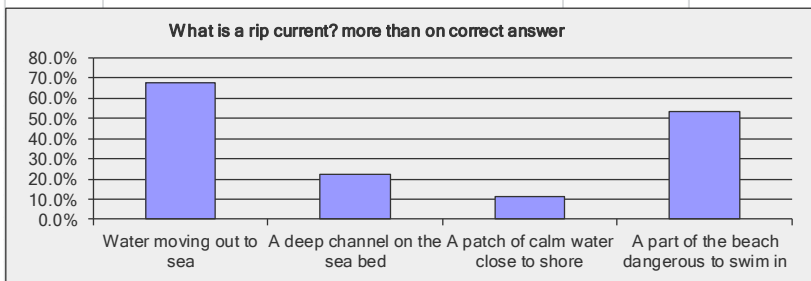




In 2016 January to April Surf Lifesaving New Zealand recorded 737 rescues of these 529 were from a Rip or Hole (holes being the initial capture point of a rip channel) .Concluding that %73 of the rescues carried out by life guards in that period were from Rips a major focus of the Beach Education Programs is Rip identification and what to do when caught in a rip. The following tables are associated with this key environmental hazard.

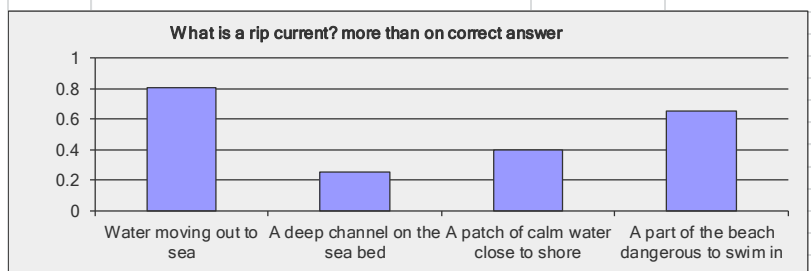
Surf Safety Survey - Before Beach Ed

What is a rip current? more than on correct answer		
Answer Options	Response Percent	Response Count
Water moving out to sea	67.8%	99
A deep channel on the sea bed	22.6%	33
A patch of calm water close to shore	11.0%	16
A part of the beach dangerous to swim in	53.4%	78
answered question		146
skipped question		40



Surf Safety Survey - After Beach Ed

What is a rip current? more than on correct answer		
Answer Options	Response Percent	Response Count
Water moving out to sea	80.6%	87
A deep channel on the sea bed	25.0%	27
A patch of calm water close to shore	39.8%	43
A part of the beach dangerous to swim in	65.7%	71
answered question		108
skipped question		21



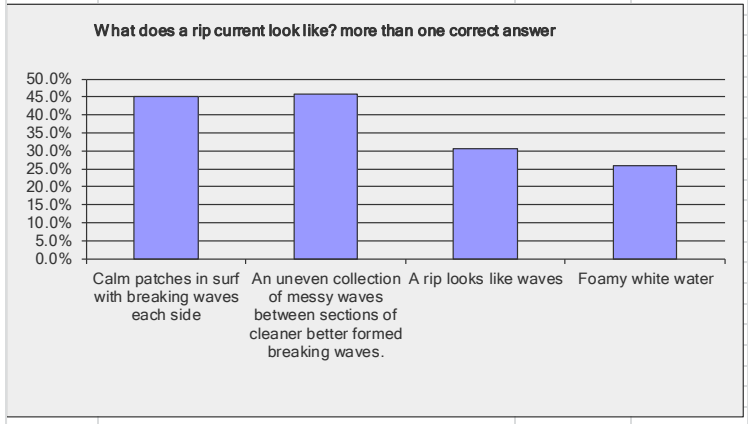
The most critical indicator of a Rip is the calm patch of water close to shore. It fools swimmers into a false sense of security providing a seemingly safe place to swim surrounded by normally rough waves in comparison. Prior to Beach Education only % 11 of students identified this as a hazard. After the program almost % 40 identified the hazard. SLSNZ Education staffs are working to improve this result through further program development.





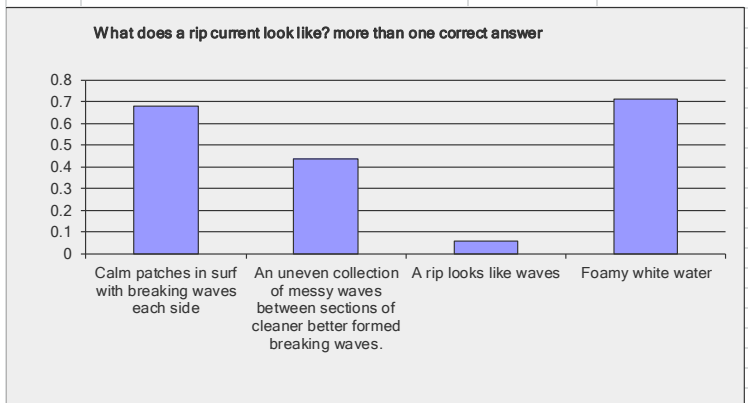
Surf Safety Survey - Before Beach Ed

What does a rip current look like? more than one correct answer		
Answer Options	Response Percent	Response Count
Calm patches in surf with breaking waves each side	45.0%	63
An uneven collection of messy waves between sections of cleaner	45.7%	64
A rip looks like waves	30.7%	43
Foamy white water	25.7%	36
answered question		140
skipped question		46



Surf Safety Survey - After Beach Ed

What does a rip current look like? more than one correct answer		
Answer Options	Response Percent	Response Count
Calm patches in surf with breaking waves each side	67.6%	73
An uneven collection of messy waves between sections of	43.5%	47
A rip looks like waves	5.6%	6
Foamy white water	71.3%	77
answered question		108
skipped question		21



Having the students identify not only the key aspects of a rip but also where they are not and therefore safe places to swim is important. These tables represent the shift in students learning that waves are safe places to swim on a beach, with a %25 change in understanding waves are indicators of safe places to swim. Some work is being spent on distinguishing between the refracted wave of a rip and the parallel wave's best indicators of safe swimming areas. This will be implemented in the 2016 – 17 season.





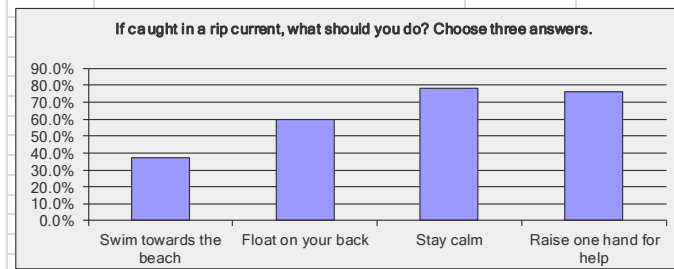
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Messages on what to do once caught in rip currents are confusing, this program focuses on the student not wasting energy swimming against the currents. They are encouraged not to panic and signal for help.

Surf Safety Survey - Before Beach Ed

If caught in a rip current, what should you do? Choose three answers.

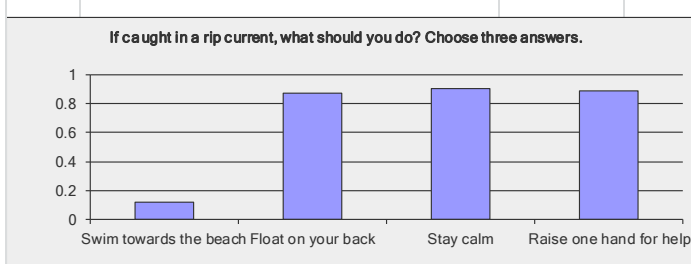
Answer Options	Response Percent	Response Count
Swim towards the beach	37.1%	53
Float on your back	60.1%	86
Stay calm	78.3%	112
Raise one hand for help	76.2%	109
answered question		143
skipped question		43



Surf Safety Survey - After Beach Ed

If caught in a rip current, what should you do? Choose three answers.

Answer Options	Response Percent	Response Count
Swim towards the beach	11.7%	12
Float on your back	87.4%	90
Stay calm	90.3%	93
Raise one hand for help	88.3%	91
answered question		103
skipped question		26



The Post Beach Education Results show a reduction of Swimming against the current by %26. The students selecting to relax conserve energy increased by %27 and correctly signal for help by %10. SLSNZ still feels the instances of those choosing to swim to shore is still too high post the course at %11.7 and therefore is reviewing the associated teaching material on what to do if caught in a rip to reduce the action of swimming against to current.





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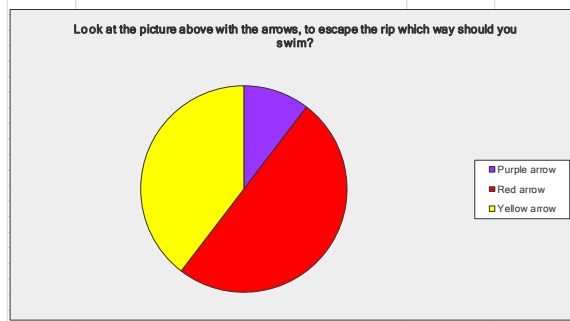
The following are tables representing a response to a photograph of a rip along with the following arrows indicating a choice of actions or escape routes to swim towards.



Surf Safety Survey - Before Beach Ed

Look at the picture above with the arrows, to escape the rip which way should you swim?

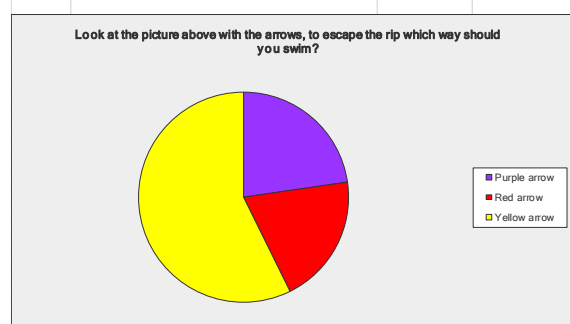
Answer Options	Response Percent	Response Count
Purple arrow	10.4%	15
Red arrow	50.0%	72
Yellow arrow	39.6%	57
answered question		144
skipped question		42



Surf Safety Survey - After Beach Ed

Look at the picture above with the arrows, to escape the rip which way should you swim?

Answer Options	Response Percent	Response Count
Purple arrow	22.7%	25
Red arrow	20.0%	22
Yellow arrow	57.3%	63
answered question		110
skipped question		19



Although this question did show the desired shift in the learning of the students at %18 increase in the correct direction being selected and a %30 reduction of what not to do. Upon reflection the increased responses for the purple arrow indicates the question needs to be rewritten as it's not clear to the reader if they are being asked for drift direction or swim direction.



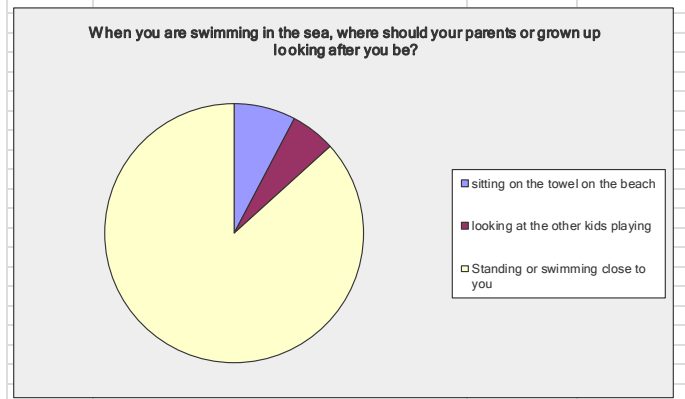


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A key message is the proximity of Parents or Care givers with children when in the children are in the water.

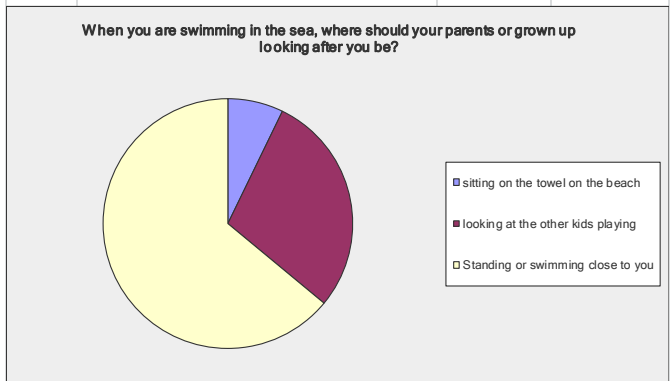
Surf Safety Survey - Before Beach Ed

When you are swimming in the sea, where should your parents or grown up looking after you be?		
Answer Options	Response Percent	Response Count
sitting on the towel on the beach	7.7%	11
looking at the other kids playing	5.6%	8
Standing or swimming close to you	86.6%	123
<i>answered question</i>		142
<i>skipped question</i>		44



Surf Safety Survey - After Beach Ed

When you are swimming in the sea, where should your parents or grown up looking after you be?		
Answer Options	Response Percent	Response Count
sitting on the towel on the beach	7.2%	8
looking at the other kids playing	28.8%	32
Standing or swimming close to you	64.0%	71
<i>answered question</i>		111
<i>skipped question</i>		18



This was an unexpected result and without this use of this survey tool would have gone unnoticed. Clearly we are reworking this material and the questions as the intent of the unit is to drive home the safety message that when in the water the Parents or Care givers must be within arm's length at all times.





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3.6 Summary

In Summary the inclusion of the Beach Education Program in a student's learning program does have a significant positive effect in both informing them of the key environmental hazards that exist along out coastlines. It also provides them with increased knowledge on how to both remove themselves from the hazards but also what to do if one is caught in a Rip (the cause of at least %72 of all coastal rescues in NZ in 2016)

The survey tool has indicated areas within the Beach Education Program that could be further developed to improve upon the learning outcomes for the students who participate in the program.

4. References

Accident Compensation Corporation, 2005. Drowning Prevention Strategy: Towards a Water Safe New Zealand 2005-2015. Accident Compensation Corporation, Wellington, New Zealand.

Quan, L., Bennett, E. B., & Branche, C. M. (2007). Interventions to Prevent Drowning. In Doll, S. L., Bonzo, S. E., Sleet, D. A., Mercy, E. N., & Haas, E. N. (Eds.), Handbook of Injury and Violence Prevention (pp. 81-96). Atlanta, USA: Springer.

Surf Life Saving New Zealand, 2014a. Annual Report, 2014. Surf Life Saving New Zealand, Wellington, New Zealand, pp. 44.

Surf Life Saving New Zealand, 2014b. Patrol and Memberships Database. Accessed at <http://pam.surflifesaving.org.nz/default.aspx> on Monday 7 July 2014.

Water Safety New Zealand, 2014. 2013 Provisional Drowning Report. Water Safety New Zealand, Wellington, New Zealand.

5. Appendix

Appendix 1a

Surf Survival Schools Questionnaire SLSNZ pilot KM REV 110515

Appendix 1b

Surf Safety Survey Comparison Summary_Pre_and_Post_2016

