

RESEARCH REVIEW OF ROCK FISHING IN NEW SOUTH WALES

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Background

Fishing is one of the most popular sports enjoyed in NSW. It is estimated that one million people across the state go recreational fishing at least once a year (Jones, 2003). Rock fishers make up a small, but passionate, sector of the fishing community and while it is an enjoyable pastime for many, unfortunately it is also a sport that poses many dangers. Some fishing can be done very safely from the rocks, especially in sheltered bays, inlets and protected headlands. However, some rock platforms, especially on more high energy exposed coastline where large waves can break unpredictably, can be more dangerous to rock fishers.

Rock fishing represented 45% (n=119) of all fishing related drowning fatalities (including boating and all shore based fishing) in NSW between 2000-2007 (Piliskic et al, 2011). People of Asian background accounted for 59% of the 54 rock fishing fatalities during this period (Piliskic et al, 2011).

A series of rock fishing safety programs have been undertaken over the years by various organisations to educate and assist rock fishers in NSW to help keep them safe. These organisations include the NSW Branch of the Australian National Sportfishing Association (ANSA), Recreational Fishing Alliance of NSW (RFA), Surf Life Saving Australia (SLSA), Royal Life Saving Society (RLSS), NSW Department of Sport and Recreation, and NSW Department of Primary Industries (NSWDPI). Some of these programs are now being extended and adopted in other states (Bradstreet, 2011). A brief summary of recent NSW programs is provided below:

- The Angel Ring Project is implemented by ANSA and involved the installation of more than 110 life buoys at popular rock fishing spots along the NSW coast. The program began in 1994 and is now being expanded in other states. The program is ongoing and the installation of more rings is planned. The program also includes fisher safety signage and a trial of angel ring GPS trackers (RFA, 2012).
- The NSW Rock Fishing Safety Awareness Program commenced in 2004 and was coordinated by the NSW Department of Sport and Recreation in collaboration with ANSA, RFA, NSWDPI, and SLSA. This included development and distribution of a rock fishing safety resource folder and production of a safety DVD. The folders and DVDs were translated into Korean, Chinese and Vietnamese, and distributed free of charge to anglers (RFA, 2012)).
- The NSW 'Don't put your life on the line' education campaign involved refining the above resource kit into a more user friendly format for anglers by the RFA. Several phases of this program have been run over the past few years. Over 50,000 kits have been distributed to anglers since 2006 through various media, including online, fishing clubs, formal safety events, NSWDPI Fishcare Volunteers and Fisheries Officers (RFA, 2012).
- A research program undertaken by the University of New South Wales was undertaken in 2008 and 2009 titled 'predicting hazardous conditions for rock fishers' which modelled the processes that lead to waves overtopping and sweeping people off rock platforms for potential use in future warning forecasting (Shand et al, 2009)

- The Asian Awareness Project was undertaken in 2009 by ANSA and the RFA in collaboration with SLSA and involved a series of rock fishing safety advertisements in a range of Asian Newspapers (SLSA, 2010)
- A series of workshops in 2010 and 2011 were run by the RFA in collaboration with ANSA, SLSA, NSW DPI and other organisations to educate rock fishers, especially of CALD background, of simple safety messages. So far 5 workshops have been held and more are planned.
- The Multilingual Safety Information Program was implemented by NSW DPI in 2010 and involves distributing a tri-fold rock fishing safety brochure (based on the 'don't put your life on the line' education campaign) to recreational fishing license holders (around 250,000 per year) with their license renewal notice. This is an ongoing program. (RFA, 2012)
- Angel ring enhancement program – additional funding from the NSW Government is being provided to ANSA to enhance the angel ring program, including the installation of more rings, fisher safety signage and a trial of angel ring GPS trackers. The trackers enable ANSA to monitor the use of the rings in emergency situations and identify missing rings (ANSA, 2011)
- The Royal Life Saving Society has recently undertaken a study to review existing literature on recreational fishing related drowning fatalities, investigate these recreational fishing related drowning fatalities and undertake a survey of recreational fishers' exposure, attitude and risks taken. This follows on from a previous study completed by the NSW Water Safety Taskforce in 2003 titled: *Investigation into the coronial files of rock fishing fatalities that have occurred in NSW between 1992 and 2000.* (Piliskic et al, 2011)

The mandatory use of lifejackets for rock fishers has been identified by various stakeholder groups to address safety and drowning concerns. There are a number of complexities regarding this issue which have previously been acknowledged by the NSW Water Safety Advisory Council.

There are a number of organisations with associated interested in drowning related fatalities, including rock fishing, including those directly involved in the implementation of various safety programs, those operating in an advisory function or those involved in rock fishing rescue.

Scope

Surf Life Saving Australia (SLSA) was contracted by the NSW Department of Primary Industries to conduct a research review of rock fishing safety in NSW. This followed recommendations made by the Coroner to the Department.

In May and February 2011, Deputy State Coroner MacMahon handed down the same recommendation in the cases of Qintao Wang and Tong Ren:

To the Minister for Industry and Investment:

1) That research be undertaken under the authority of the Department to:

• Identify the demographic groups most at risk of drowning related rock fishing fatalities, and

• Identify and assess the effectiveness of all educational, enforcement and engineering safety methods currently used to prevent such fatalities.

2) That the results of such research be used to develop a rock fishing safety program for New South Wales. (MacMahon, 2011)

On the 9th June 2011, Deputy State Coroner Magistrate Buscombe concurred with Coroner MacMahon and extended the recommendation in the joint inquest of Yong Jin Ko, Po Poon, Yuet Agnes Hui Poon, Dillon Poon, Dennis Tin, Jenny Tin, Minh Loi Truong, Wan Lee, Han Fie Tjoe, Heeki Kim, Langton Mali and John Pitomaki:

118. To consider whether the time taken for local government authorities and other relevant agencies, to approve the erection of appropriate warning signs and provision of safety devices in an acceptable time period. To consider what steps can be taken to speed up the process.

119. To consider what is the most appropriate portable flotation device that should be carried by those involved in rock fishing. The department ought consider whether or not it should be compulsory for any such device to be in the possession of a person who engages in rock fishing. (Buscombe, 2011)

Based on these combined coronial recommendations the final objectives of the report were developed.

The specific objectives of the project as defined by NSW DPI were:

- 1) Undertake a desktop review of key demographic reports on NSW coastal rock fishing fatalities and prepare a summary report of existing statistics on the demographic groups most at risk of drowning whilst rock fishing in NSW.
- 2) Undertake a comprehensive desktop review of literature reports on rock fishing safety methods/programs used or proposed to be used to prevent rock fishing fatalities in Australia and around the world.
- 3) Undertake consultation, as required, with relevant organisations/manufacturers implementing rock fishing safety methods/programs and/or have the authority to implement these programs
- 4) Undertake a detailed assessment and analysis of the current or potential effectiveness of each of these safety methods/programs in regard to their capacity to improve rock fishing safety in NSW. (Bradstreet et al, 2012)

The development of a rock fishing safety strategy or program was not in the scope of the project.

Methodology

Surf Life Saving Australia (SLSA) partnered with the University of New South Wales in the development of the Research Review of Rock Fishing in New South Wales. The aims of this research were to:

- i. Review rock fishing fatalities in NSW using information from existing reports and provide an update of rock fishing-related fatalities in NSW from 2000 to 2010;
- ii. Describe rock fishing-related hospitalised morbidity in NSW from 2003-04 to 2010-11;
- iii. Determine self-reported exposure to rock fishing in NSW using data from the NSW Population Health Survey program, 2005;
- iv. Review the literature on rock fishing safety methods and programs in terms of education, engineering, enforcement and other methods and programs aimed at improving rock fishing safety;
- v. Conduct an online survey of relevant organisations and manufacturers regarding the effectiveness of methods and programs aimed at improving rock fishing safety, including identification of the strengths and limitations of each initiative;
- vi. Conduct stakeholder interviews regarding the effectiveness of proposed improvements proposed through the epidemiological review, literature review, or online survey; and
- vii. Provide recommendations for the improvement of rock fishing safety in NSW to the Department of Primary Industries.

The study was conducted in two parts. Aims i – v were conducted by the University of New South Wales Transport and Road Safety (TARS) Research centre in the School of Aviation by Dr. Rebecca Mitchell, Lauren Ware, and Dr. Mike Bambach. To ensure scientific rigor and

objectivity, this assessment was carried out independently of SLSA. SLSA provided consultation and logistical assistance to the delivery.

The TARS report provided recommendations, which were the basis for a round of in depth stakeholder interviews to further explore those key topics identified. SLSA conducted these stakeholder interviews between Friday 24th February 2012 and Monday 12th March.

A total of 30 stakeholders were identified for this round of consultation across a range of professions and interest groups. These 30 stakeholders were contacted by e-mail with a request for participation. A total of 26 participants took place in the interview process. This represents an 83.3% participation rate.

Participants were advised that any information provided including audio recordings would be de-identified. This was considered necessary considering the controversial nature of some topics. The de-identified quotations provided are expressed in this report.

The final report endeavours to make a series of prioritised recommendations into the effectiveness of various interventions for rock fishing safety based on the available evidence provided through the TARS report and stakeholder engagement.

This final report also provides a series of Action Items relating to the implementation of the recommendations.

A summary of key evidence considered to support these recommendations is provided.

The author has been made aware that following a restructure of water safety policy under the New South Wales Government, water safety including rock fishing now falls under the responsibility of the Ministry for Police and Emergency Services rather than Department of Primary Industries.

Limitations

The scope of this research review did not allow the widespread consultation of the rock fishing community. The researchers have attempted to consult with leaders within the rock fishing community. These leaders were asked to provide opinions which were reflective of their communities (informal rock fishing groups, fishing clubs, or associations).

The researcher also conducted site visits over 10th-11th March, to discuss rock fishing safety with anglers on the rocks. This attempted to 'road test' some of the recommendations with larger groups of anglers to determine whether the opinions expressed through stakeholder surveys and interviews were consistent with the general opinion. These interviews were informal, and quotations have not been included in this report.

The scope of this research also provided provision of desktop review and information gathering only. There are several theories related to public rescue equipment and personal inflatable devices which currently have no quantitative evidence, in situ or laboratory test results available to contribute to the assessment. Where this is the case, action items have been made by analysis of the available expert opinion.

Summary of Epidemiological Findings and Recommendations

The TARS report provides a thorough epidemiological review, literature review and online stakeholder survey analysis. This was complemented by a recent publication by Monash University which provided a national snapshot of rock fishing related epidemiology (Cassel and Claperton, 2011).

Key findings of the epidemiological analysis included;

- Aside from yearly fluctuations, there has been no significant change in the number of fatalities per year.
- Nearly all decedents were male, with an average age in the mid-forties.
- Decedents were predominantly able to swim.
- The majority were not wearing PPE, including PFDs or non-slip footwear.
- Decedents were predominantly fishing alone or with one other person.
- There were more persons recorded as wearing PPE between 2000-2010 as compared to 1992-2000.
- There is an average of 38 rock fishing related hospitalisations each year.
- There is an average of 74 unspecified fishing related hospitalisations each year.
- 75% of hospitalisations were following a fall and exposure to inanimate mechanical forces.
- Injuries to the knee and lower leg (29.9%) and head (12.9%) were the most common injuries sustained. (Mitchell et al, 2012)

Following the methodology described, a series of three final recommendations and 33 action items have been made. These are accompanied in the full report by an account of the evidence both supporting and detracting from the recommendation or action item. The action items have been provided for the consideration of those implementing the recommendations and have not been prioritised. A summary of all action items can be found in Appendix 1. Judgements have been made on the available evidence as instructed by the Department of Primary Industries.

Recommendation 1: Develop a state-wide strategic plan for Rock Fishing Safety in New South Wales, including the delegation of responsibilities to key agencies, stakeholders and non government organisations, and the development of clear objectives and key performance indicators.

It has been widely identified that there are a variety of interventions designed to support and improve rock fishing safety already underway in NSW. These activities fall under the financial contribution of several government agencies, and are delivered by a broad range of stakeholders including fishing associations and clubs, government departments, emergency services and volunteer rescue organisations. The development of a collaborative, coordinated strategy, under the leadership of one agency, was considered essential by stakeholders (Bradstreet et al, 2012)

Stakeholders and the authors perceived and identified the following interventions as the most successful interventions for inclusion in strategy development (Bradstreet et al, 2012):

- 1) Wearing PFDs and non-slip footwear (voluntary or mandated)
- 2) Education campaigns using safety ambassadors and targeting vulnerable communities
- 3) Targeted technique and safety workshops and other media
- 4) Coastal safety risk assessments
- 5) Public rescue equipment
- 6) Review, assessment and continuous improvement procedure for all interventions

Recommendation 2: Develop, implement and assess a public education and communication campaign, incorporated into the state-wide strategy to promote safe rock fishing practices and support the introduction of legislation.

Although education and communication initiatives were noted for inclusion in the strategy, the evidence provided and stakeholder opinion of the perceived potential success of education initiatives warranted their identification through a specific recommendation.

The continued use of written material and DVDs was identified as a particularly unsuccessful initiative to improve rock fishing safety. There is little quantitative evidence available regarding

the effectiveness of the various rock fishing safety campaigns, and improving this situation by implementing a rigorous assessment and review procedure is crucial for future improvements. (Bradstreet et al, 2012)

Recommendation 3: Legislate the mandatory wearing of Personal Floatation Devices (PFDs) while rock fishing at coastal locations in New South Wales.

The key message of current education and communication initiatives related to rock fishing safety is inevitably the use of PFDs. Although other aspects of rock fishing safety are vitally important, and in risk management terms, more important to prevent the angler from entering the water, there have been persistent calls for the introduction of legislation to mandate the use of PFDs while rock fishing.

In support of this proposition, there is 20 years worth of drowning data, indicating that no victim has drowned while properly wearing an Australian Standard PFD (Cassell & Clapperton 2011; Piliskic et al 2011; Jones, 2003; Bradstreet et al 2012). There are international studies indicating that the comparative rate of survival following accidental immersion for someone wearing a PFD is twice that of someone who is not (Cummings et al, 2011). The proposition of exploring mandatory PFD legislation has been cited in several reports including the TARS report, and there is significant support for the notion of legislation within the stratified stakeholder group incorporated into the online survey and interview process for this research. It was noted, that within this group, there was an element of resistance from anglers, and sentiments expressed that anglers would be in opposition to any such legislation for a number of reasons (Bradstreet et al, 2012).

The arguments provided against legislation include cultural perception of PFD use, lack of identification with being at risk themselves, and identifying others as being of higher risk particularly the inexperienced and anglers of Asian background (Bradstreet et al, 2012). The evidence indicates that of 24 fatality cases between 2000-2010, which provided information about experience, 96% were considered experienced (Mitchell et al, 2012). The majority of victims were also identified as competent swimmers (Mitchell et al, 2012). While Asian background was a common characteristic of drowning victims, it was by no means comprehensive, and all rock fishers are faced with significant hazards while angling. The lack of identification with this with individual risk is a significant barrier which will need to be addressed through education and communication initiatives.

Enforcement was also identified as a key barrier to legislation. There were two consistencies to this testimony;

- 1) That mandatory lifejacket legislation would be impossible to enforce, and
- 2) Legislation should not be introduced unless there is an ability to enforce the mandate.

Opinion regarding the ability to enforce legislation is mixed; ranging both heavily for a against a belief that it could be appropriately enforced. There is also an element which believes legislation would improve voluntary compliance with or without enforcement. Previous research has indicated further investigation into enforcement is necessary (Piliskic, 2011). There are a number of Government agencies involved in compliance of water based activities including fishing with potential capacity to endorse mandatory lifejacket legislation. The ability to enforce does not appear to be a significant barrier to legislative efforts (Bradstreet et al, 2012).

Despite the available evidence provide herein this report, it is highly likely that mandatory PFD legislation will be met with resistance from the fishing community. It has been proposed that introducing mandatory PFD legislation to certain high risk locations could be received better by the fishing community. There is evidence available against the introduction of legislation for

periods or locations of heightened risk, which indicates lower rates of compliance. Stakeholders also indicated this would complicate education and enforcement aspects of legislative introduction. A grace period of no penalties being enforced is preferred.

While resistance to legislation by anglers is not unexpected, the inability of prolonged education, communication, engineering and other initiatives to prevent rock fishing related drowning has resulted in drastic decisions such as these needing to be made to curb the drowning toll.

Appendix 1: Recommendations and Action Items

Recommendation 1: Develop a state-wide strategic plan for Rock Fishing Safety in New South Wales, including the delegation of responsibilities to key agencies, stakeholders and non government organisations, and the development of clear objectives and key performance indicators.

Action Item 1.1: The NSW Rock Fishing Safety Strategy will adopt the goal of a 50% reduction in rock fishing related drowning by 2020 from a 3 year baseline from 2004-2007.

Action Item 1.2: The New South Wales Rock Fishing Safety Strategy will be developed and the responsibility of the Safer Coastal Waters Sub-Committee under the leadership of the Chair agency (currently NSW Police) or their delegate.

Action Item 1.3: Rock fishing related fatality data will be collected and analysed annually for comparison to milestone targets for 50% reduction in drowning by 2020. Rock fishing related morbidity data will be collected and analysed at least every 4 years to inform intervention strategies.

Action Item 1.4: Develop and implement the methodology and mechanisms to collect rock fishing exposure data as part of routine coastal patrols.

Action Item 1.5: A coastal safety risk assessment of rocky coastlines in identified rock fishing black spots will be undertaken to identify localised strategies and interventions.

Action Item 1.6: Conduct further research and consultation into determining the most effective setting of dangerous surf warning thresholds.

Action Item 1.7: The use of non-slip footwear, appropriate to the local platforms, is promoted through education and communication initiatives.

Action Item 1.8: Liaise with Australian Standards regarding comprehension of aquatic safety signage in non-English speaking communities, and deliver education initiatives to increase comprehension.

Action Item 1.9: The installation of improved access may be considered on a case by case basis following recommendations from a safety risk assessment process.

Action Item 1.10: Coastal safety risk assessments can be used to justify exclusion for prioritised areas in consultation with the land manager on a case by case basis.

Action Item 1.11: The wearing of appropriate clothing is promoted through education and communication initiatives.

Action Item 1.12: The use of anchor points in New South Wales cannot be recommended until further evidence of their effectiveness is available.

Action Item 1.13: The installation of emergency beacons will be considered on a case by case basis following coastal safety risk assessment of the location, and carrying of a mobile phone or EPIRB is encouraged in education and communication initiatives.

Action Item 1.14: The establishment of a coordinated Emergency Marker system for coastal locations to be further explored in consultation with the New South Wales Police Force.

Action Item 1.15: Develop and implement a national guideline for the installation of public rescue equipment to ensure adequate methodology for the citing, installation, and maintenance of public rescue equipment.

Action Item 1.16: Based on this review of existing evidence, rescue tubes are not recommended for use as PRE.

Action Item 1.17: Based on the available evidence the use of throw bags may be installed as PRE for rocky coasts on a case by case basis.

Action Item 1.18: Based on the limited evidence available, the use of silent sentries (or similar devices) may be appropriate for rock platforms with a gently sloping rampart (<1:1) on a case by case basis.

Action Item 1.19: Based on the limited evidence available, and the establishment of the program, the use of angel rings (life buoys) is considered appropriate on rock platforms with a steep rampart (>1:1) on a case by case basis with formal auditing and maintenance procedures in place.

Action Item 1.20: The following actions should be considered by the NSW Government to facilitate land managers to install safety signage and/or public rescue equipment related to rock fishing safety:

- a) Review section 5L of the Civil Liabilities Act (2002) NSW to absolve land managers of liability for attempts to mitigate risks associated with dangerous recreational activities by installing safety signage or emergency rescue equipment.
- b) Formalise installation and maintenance procedures for public rescue equipment.

Action Item 1.21: Inflatable throw sticks will be used by emergency services regularly employed to rocky coast related incidents in conjunction with angel rings.

Recommendation 2: Develop, implement and assess a public education and communication campaign, incorporated into the state-wide strategy to promote safe rock fishing practices and support the introduction of legislation.

Action Item 2.1: The state-wide strategy will allocate appropriate resources to the implementation and management of rock fishing safety education and communication activities.

Action Item 2.2: A joint resource will be explored and established to manage rock fishing education and communication initiatives between key stakeholders and the multicultural community.

Action Item 2.3: The Safer Coastal Waters Sub Committee will establish a consistent set of key messages for rock fishing safety for promotion by all agencies in public education and communication initiatives.

Action Item 2.4: The Safer Coastal Waters Sub Committee will establish and implement a Rock Fishers Code of Conduct in consultation with key stakeholders and the community.

Action Item 2.5: That a range of recognisable ambassadors are appointed as spokespeople for safe rock fishing, to use in advertising materials, resources, and educational programs and other initiatives.

Action Item 2.6: SLSNSW in partnership with ANSA and the RFA will develop a necessary syllabus, lesson plan, implementation plan and evaluation process to support the coordinated delivery of rock fishing safety seminars and workshops.

Action Item 2.7: Develop and implement a robust independent evaluation program of rock fishing safety initiatives based on; unprompted recall, reported behavioural change, actual behavioural change, and epidemiological data.

Recommendation 3: Legislate the mandatory wearing of Personal Floatation Devices (PFDs) while rock fishing at coastal locations in New South Wales.

Action Item 3.1: A working group is to be established including PFD manufacturers and anglers to develop practical rock fishing specific lifejackets designed to improve the voluntary wearing of lifejackets with or without legislative support.

Action Item 3.2: Any legislation efforts should not be restricted to either periods of heightened risk or geographic locations.

Action Item 3.3: Following the implementation of any legislation a grace period be given where no penalties would be enforced. During the grace period, concentrated education and awareness efforts be undertaken to increase voluntary PFD wearing rates.

Action Item 3.4: Legislation will specify that PFDs must comply with Australian Standard AS4758 -Personal flotation devices.

Further Research

Action Item 4.1: Develop and implement a robust independent monitor and review program of rock fishing safety initiatives including but not limited to; unprompted recall, reported behavioural change, actual behavioural change, and epidemiological data.

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