



Risk Management Advice-
Personal
Floatation Devices (PFDs)



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Document Classification

This document is classified OFFICIAL- Sensitive

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Issue

Background

The Australian Dragon Boat Federation (AusDBF) Committee has met over the past few months to discuss the mandating of Personal Flotation Devices (PFDs) for Sweeps and Drummers. The mandate was pitched to State Members earlier in 2021, but the response was of mixed results with some states supporting this approach with others strongly opposing the same.

The Committee's justifications for the wearing of PFDs are:

- The crew are facing forward, so if the Sweep falls off, there can be a significant delay for the crew to become aware and react accordingly;
- Depending on the makeup of the crew, as well as physical characteristics of the sweep, it could be very difficult for the crew to haul the sweep back into the water or even hold on to them until they can be rescued.

The Queensland members have raised concerns that the wearing PFDs cause sweeps to "Over heat".

On Thursday 17th March 2016, Carol Waitohi was operating as a sweep, standing at the back of the boat holding a long oar directing the movement of the boat when she fell into the water. The 15 women in the boat had no idea Waitohi had fallen until the boat started steering in the wrong direction, and the crew looked up and found that the sweep was no longer on the boat.

Water police, helicopters and lifeguards searched for Ms Waitohi overnight and found her body just before 8:00am on Friday 18th March 2016. While the Queensland Police Service (QPS) investigation for the coroner found that Ms Waitohi had suffered an aneurism and was dead before she hit the water, had she been wearing a PFD it was reasonably likely that she would have been found quickly, subsequently reducing the emotional impact to Ms Waitohi's family and friends.

ERMS group Engagement

The ERMS group has been engaged by the Australian Dragon Boat Federation to conduct a risk managed approach to assist in the decision for the Board on the mandate of PFDs across the States/Territories.

Marine Legislative and Government Regulations

New South Wales

- *Marine Safety Act 1998;*
- *Marine Safety Regulation 2016;*
- *NSW Rowing Code of Conduct; and*
- *NSW Boating Handbook*

Transport NSW have encapsulated the key legal obligations from the *Marine Safety Act 1998* and *Marine Safety Regulation 2016* into the *Rowing Code of Conduct* and *NSW Boating Handbook*. A Rowing Vessel is defined as a vessel that you row, and dragon boats are specifically called out.

The Handbook outlines the requirements for lifejackets or personal floatation devices as follows:

Rowing vessels

People in rowing boats. Rowing dinghies, rowing skiffs or small unpowered inflatable boats must wear a lifejacket:

Enclosed Waters	Alpine Waters ¹	Open Waters and Crossing Coastal Bars
At night (between sunset and sunrise) Or When alone on your vessel (including when you have children aged under 12 on your vessel) At all times At all times Level 50S or above Level 50S or above Level 100 or above	At all times	At all times
Level 50S or above	Level 50S or above	Level 100 or above

Table 1- Excerpt from NSW Boating Handbook

People in rowing (racing) shells, dragon boats and outrigger canoes do not have to wear a lifejacket. This is because they are often part of organised activities and in larger vessels. It's recommended that you wear a Level 50S or above lifejacket when alone on an outrigger canoe.

Carrying Lifejackets

Vessels must carry enough approved lifejackets for everyone on board at all times – even when they do not have to be worn. Lifejackets must be stored for quick and easy access on board.

If they're not easy to see, the storage area must have a sign saying 'Lifejackets' (red lettering on a white background). You can get a free sticker from your nearest service centre.

¹ Alpine waters are enclosed waters in alpine areas. They include lakes, rivers, dams, and reservoirs.

Australian Capital Territory

The ACT Government has recently aligned boating rules and regulations to the same standards as that in place New South Wales.

Overview of Lifejacket Requirements

Type of Boat	Must Wear a Life Jacket	Must Carry a Life Jacket for Each Person on the Boat
Boats under 4.8 metres: <ul style="list-style-type: none"> If alone on the boat; At night 	Yes	N/A (must wear a lifejacket)
Boats under 4.8 metres: <ul style="list-style-type: none"> If accompanied by another person over the age of 12 years 	No	Yes
Canoe, kayak, kiteboard, paddle board. Sailboard or surfboard: <ul style="list-style-type: none"> If alone on the boat; At night 	Yes	N/A (must wear a lifejacket)
Canoe, kayak, kiteboard, paddle board. Sailboard or surfboard: <ul style="list-style-type: none"> If accompanied by another person over the age of 12 years 	No	No
Recreational boats under 8 metres with a child under 12 years in an open area of the boat	Yes	N/A (child under 12 years must wear lifejacket)
Rowing shell	No	No
Dragon boat that meets the dragon boat operating requirements ² and is carrying the required safety equipment	No	No
Dragon boat that is operating when a person on board has not participated in an appropriate safety drill	No	Yes
Recreational boat (other than a boat listed above)	No	Yes

Table 2- Excerpt from ACT Regulations

² Dragon boat operating requirements mean:

- operating within 200 metres of the shore;
- in weather conditions that are not, and are not predicted to become, unsuitable for boating;
- where each person on board has undergone a safety drill in relation to possible emergencies arising on the boat;
- if the boat is operating in a channel, the dragon boat on the starboard side is not in the middle of the channel; and
- if operating at night or with restricted visibility, must meet the lighting requirements outlined below.

Victoria

- *Marine Safety Act 2010;*
- *Marine Safety Act 2012;*
- *Maritime Safety Victoria - Guide: Vessel Operating and Zoning Rules for Victorian Waters*

Overview of Lifejacket/Personal Floatation Device Laws in Vehicle

It is a legal requirement on all but a few recreational vessels in Victoria to carry an appropriate size and type of lifejacket for each person on board. They must be stored or placed to allow quick and easy access and be in good condition and working order.

In most situations, you and your passengers are required to wear a lifejacket at all times. Use the table below to ensure you know when and where to wear a lifejacket.

Lifejacket types

Type 1 is also known as Level 100+. Type 2 is also known as Level 50. Type 3 is also known as Level 50S.

Vessel Type	Coastal Waters	Enclosed Waters	Inland Waters
Powerboat up to and including 4.8m in length	Type 1	Type 1	Type 1, 2 or 3
Powerboat more than 4.8m but not more than 12m in length (at times of heightened risk)	Type 1	Type 1	Type 1, 2 or 3
Personal watercraft	Type 1, 2 or 3	Type 1, 2 or 3	Type 1, 2 or 3
Towed sport	<i>A person who is being towed by a vessel must wear a lifejacket at all times.</i>		
Recreational tender	Type 1	Type 1 or 2	Type 1, 2 or 3
Off-the-beach sailing yacht	Type 1 if >2nm from coast, Type 1 or 2 if <2nm from coast	Type 1 or 2	Type 1, 2 or 3
Yacht (at times of heightened risk)	Type 1	Type 1 or 2	Type 1, 2 or 3
Kiteboard or sailboard	Type 1 or 2	Type 1, 2 or 3	Type 1, 2 or 3
Canoe, kayak, rowing boat, raft, stand-up paddleboard, pedal boat, or fun boat	Type 1, 2 or 3	Type 1, 2 or 3	Type 1, 2 or 3
	<i>Please note: A person operating a stand-up paddleboard, kiteboard, or sailboard no more than 400m from the shore, is not required to wear a lifejacket.</i>		
Scuba or hookah diving equipment (underwater breathing apparatus of a kind that is self-contained (scuba) or is surface supplied)	A person who is wearing, or in the process of donning or removing, diving equipment is not required to wear a lifejacket.		

Table 3- Excerpt from MSV Guide

Exemption Notice 1 – Maritime Safety Victoria

Exemptions for rowing boats, canoes (excluding Dragon Boats) and kayaks

a) Carriage of safety equipment:

- (i) persons operating a rowing boat or canoe or kayak engaged in Formal Training or Competition on inland waters, not being formal training or competition of which any part is conducted on water forming rapids, are exempt from the carriage of safety equipment requirements specified in Regulation 230.
- (ii) persons operating a rowing boat or canoe or kayak engaged in Formal Training or Competition on the Yarra River between the Bolte Bridge and the mouth of the Yarra River are exempt from the carriage of safety equipment requirements specified in Regulation 230 providing:
 - (1) communications have been established with Harbour Control prior to entering the area defined above
 - (2) each occupant wears a PFD Type 1, 2 or 3 at all times or,
 - (3) are accompanied by an inshore rescue boat or powered rescue craft in accordance with the specifications of Surf Life Saving Australia or,
 - (4) are accompanied by an appropriate powered rescue craft carrying the following equipment:
 - a. lifesaving appliances sufficient to support all persons that may be required to be rescued or,
 - b. PFD Type 1, 2 or 3 sufficient to support all persons that may be required to be rescued

b) Wearing of PFDs:

- (i) all operators and occupants of a rowing boat or canoe or kayak engaged in Formal Training or Competition on inland waters, not being formal training or competition of which any part is conducted on water forming rapids, are exempt from PFD wearing requirements specified in Regulation 232
- (ii) all operators and occupants of a rowing boat or canoe or kayak engaged in Formal Training or Competition on the Yarra River between the Bolte Bridge and the mouth of the Yarra River are exempt from PFD wearing requirements specified in Regulation 232 providing :
 - (1) communications have been established with Harbour Control prior to entering the area defined above and
 - (2) each occupant wears a PFD Type 1, 2 or 3 at all times or,
 - (3) are accompanied by an inshore rescue boat or powered rescue craft in accordance with the specifications of Surf Life Saving Australia or,
 - (4) are accompanied by an appropriate powered rescue craft carrying the following equipment:
 - a. lifesaving appliances sufficient to support all persons that may be required to be rescued or,
 - b. PFD Type 1, 2 or 3 sufficient to support all persons that may be required to be rescued

Queensland

- *Transport Operations (Marine Safety) Act 1994;*
- *Transport Operations (Marine Safety) Regulation 2016;*
- *Queensland Recreational Boating and Fishing Guide*

Overview of Lifejacket Requirements

Regulation 13 of the *Transport Operations (Marine Safety) Regulation 2016* states:

- (1) *A ship, other than a personal watercraft or tender, operating in smooth waters must be equipped with—*
 - (a) *a required lifejacket for each individual on board who is 1 year or more; and*
 - (b) *if the ship is more than 5m—firefighting equipment capable of extinguishing a fire on the ship quickly and effectively.*
- (2) *However, subsection (1)(a) does not apply if—*
 - (a) *the ship operates in a river, creek, stream or waters within breakwaters or revetments; and*
 - (b) *the ship is equipped with grab lines, grab rails or other permanent means of giving each person on board a way of keeping a secure hold to the ship; and*
 - (c) *there is a statement in the approved form for the ship that the ship has level flotation.*

Tasmania

- *Marine and Safety Authority Act 1997;*
- *Marine and Safety (General) Regulation 2013;*
- *Tasmanian Safe Boating Handbook;*
- *Making Rowing Safer for all in Tasmanian (Rowing Tasmania and Marine and Safety Tasmania)*

Overview of Lifejacket Requirements

MAST Rowing Guide

“A person in a rowing shell must wear an approved life jacket unless accompanied by a powered craft which is at all times within 200 metres of the rowing shell and is carrying sufficient Level 50 life jackets (or higher) for each person on the rowing shell.” - <https://mast.tas.gov.au/safe-boating/rowing/> (Accessed at 08:29 on Tuesday 23rd November 2021)

Northern Territory

- *Marine Safety Act 1981;*
- *Marine (General) Regulations 2013;*
- *Safety Guide for Pleasure Craft, Edition 9*

Overview of Lifejacket Requirements

Safety Guide for Pleasure Craft

Lifejackets must be suitable for the intended wearer and serviceable. Personal flotation device (PFD) means a device that complies with AS4758 and is appropriate for the activity being undertaken by the wearer of the device.

- It is recommended that all users of “ride-on” pleasure craft or aquatic toys wear an appropriate PFD.
 - Inflatable lifejackets/PFD’s must be serviced in accordance with the manufacturers recommendations.

There are different types of PFD’s for inland, intermediate, and open waters.

- Inland Waters – 1 level 50 PFD or higher per person
- Intermediate Waters – 1 level 100 PFD or higher per person
- Open Waters – 1 level 100 PFD or higher per person

The above standards do not apply to a person on or in:

1. A surf ski, racing shell, canoe, kayak, sailboard, a personal water craft, a sailing boat under 5 metres in length or with permanently closed hulls.
2. A pleasure craft which has been entered into a race in the event known as the Beer Can Regatta, or other approved aquatic events.

South Australia

- *Marine Act 1936;*
- *Marine Safety (Domestic Commercial Vessel) National Law (Application) Act 2013;*
- *Marine Safety (Domestic Commercial Vessel) National Law (Application) Regulations 2013*

Overview of Lifejacket Requirements

The safety equipment listed below is the legal minimum that must be carried and includes the mandatory wearing of a lifejacket in some situations.

Protected Waters

These include all inland waters, excluding Lake Alexandrina, Lake Albert, and any other waters subject to tidal influence.

Vessels under 8 metres

- one personal flotation device (PFD) Type 1, Type 2, or Type 3 for each person on board
- one bailer with line attached or a bilge pump
- one suitable anchor with cable
- if the boat has an engine or cooking facilities, one fire extinguisher
- if the vessel is being operated between sunset and sunrise, one waterproof and buoyant torch or lantern
- one fire bucket
- a pair of paddles or oars if your vessel is under six metres

Vessels over 8 metres

- one personal flotation device (PFD) Type 1, Type 2, or Type 3 for each person on board
- one bailer with line attached and a bilge pump
- one suitable anchor with cable
- if the boat has an engine or cooking facilities, two fire extinguishers
- if the vessel is being operated between sunset and sunrise, one waterproof and buoyant torch or lantern
- one fire bucket
- one life-buoy with line

Extracted from the South Australian Government Website <https://www.sa.gov.au/topics/boating-and-marine/boat-and-marine-safety/marine-safety-equipment/carrying-suitable-safety-equipment>

(Accessed at 10:12 on Tuesday 23rd November 2021)

Western Australia

- *Marine and Harbours Act 1982;*
- *Marine (Life Saving Appliances, Fire Appliances and Miscellaneous Equipment) Regulations 1983;*
- *Department of Transport; Safety Equipment Lifejackets Guide*

Overview of Lifejacket Requirements

The Rules

A lifejacket must be carried for each person (over the age of 12 months) on board a recreational vessel when operating in unprotected waters. Unprotected waters are WA's navigable waters that are not contained:

- *in a lake;*
- *in a river;*
- *in an estuary; or*
- *by any breakwater.*

Note: This does not include the waters of Cambridge Gulf or Lake Argyle.

When to wear lifejackets

Lifejackets are a key safety feature in recreational boating. A National Marine Safety Committee (NMSC) study found that people who survived a boating incident were more than two times more likely to have been wearing a lifejacket compared to those who died and concluded that if lifejacket usage increased to 50%, 2-3 lives could be saved nationally each year.

Besides wearing them in emergencies, you also enhance safety if you wear lifejackets in the following circumstances:

- At the first sign of bad weather.
- Between sunset and sunrise or during restricted visibility.
- When operating in unfamiliar waters.
- When operating with a following sea.
- When boating alone (this is especially recommended).
- At all times on children under 10 years.
- If you are a poor swimmer.

Practice putting them on in the dark and in the water; it is harder than you think.

Extracted from the Western Australian Government Website

<https://www.transport.wa.gov.au/imagine/life-jackets.asp>

(Accessed at 10:29 on Tuesday 23rd November 2021)

AusDBF Policies, Procedures and Rules

AusDBF Safety Handbook

Swimming Test

Section 3.1 states that:

Dragon Boating is a water sport. Accidents on the water can lead to people drowning. To mitigate the risk of drowning, it is strongly recommended all people on the water in a dragon boat are able to swim confidently 100m in paddling clothing (shirt, shorts, enclosed shoes as a minimum) and tread water in the same clothes for a minimum of 10 minutes without support.

Any person who cannot satisfy these requirements must wear a lifejacket or a PFD. Clubs are to encourage all participants to undertake a swim test on an annual basis. This test is best undertaken under the supervision of a nominated Club member or members for verification, and safety.

Each Member State/Territory to determine own requirements with regards to swim tests and wearing of PFDs depending upon state maritime requirements.

Buoyancy Aids

Section 3.4 states that:

Lifejackets and/or PFDs (Personal Flotation Device)/ buoyancy aids) must be Australian Standard compliant and made available for all Junior participants at an Australian Championships or as per State/Territory Maritime regulations. (refer to rule **CR7.10c** in **AusDBF Competition Rules & Regulations**) and for any competitor irrespective of age, who is a non-confident swimmer. (refer to rule **CR7.9** in **AusDBF Competition Rules & Regulations**). Participants are encouraged to bring their own PFD to training and regattas.

It is important to note that lifejackets or PFDs can overheat the body on a hot day. Team managers are to ensure that once off the water lifejackets and PFDs are removed to allow the body to cool.

Participants using their own gas operated PFDs must have spare canisters with them in case the PFD is used/activated during training or a race.

Risk Management

Legislative Instruments

New South Wales

Work Health and Safety Act 2011

17 Management of risks

A duty imposed on a person to ensure health and safety requires the person—

- a) to eliminate risks to health and safety, so far as is reasonably practicable, and*
- b) if it is not reasonably practicable to eliminate risks to health and safety, to minimise those risks so far as is reasonably practicable.*

Australian Capital Territory

Work Health and Safety Act 2011

17 Management of risks

A duty imposed on a person to ensure health and safety requires the person—

- a) to eliminate risks to health and safety, so far as is reasonably practicable; and*
- b) if it is not reasonably practicable to eliminate risks to health and safety, to minimise those risks so far as is reasonably practicable.*

Victoria

Occupational Health and Safety Act 2004

26 Duties of persons who manage or control workplaces

- 1. A person who (whether as an owner or otherwise) has, to any extent, the management or control of a workplace must ensure so far as is reasonably practicable that the workplace and the means of entering and leaving it are safe and without risks to health.*

*Penalty: 1800 penalty units for a natural person;
 9000 penalty units for a body corporate*

- 2. The duties of a person under subsection (1) apply only in relation to matters over which the person has management or control. (3) An offence against subsection (1) is an indictable offence.*

Queensland

Work Health and Safety Act 2011

17 Management of risks

A duty imposed on a person to ensure health and safety requires the person—

- a) to eliminate risks to health and safety, so far as is reasonably practicable; and*
- b) if it is not reasonably practicable to eliminate risks to health and safety, to minimise those risks so far as is reasonably practicable.*

Tasmania

Work Health and Safety Act 2012

17. Management of risks

A duty imposed on a person to ensure health and safety requires the person –

- a) to eliminate risks to health and safety, so far as is reasonably practicable; and*
- b) (b) if it is not reasonably practicable to eliminate risks to health and safety, to minimise those risks so far as is reasonably practicable.*

Northern Territory

Work Health and Safety (National Uniform Legislation) Act 2011

17 Management of risks

A duty imposed on a person to ensure health and safety requires the person:

- a) to eliminate risks to health and safety, so far as is reasonably practicable; and*
- b) if it is not reasonably practicable to eliminate risks to health and safety, to minimise those risks so far as is reasonably practicable.*

South Australia

*Work Health and Safety Act 2012***17—Management of risks**

1. A duty imposed on a person to ensure health and safety requires the person—

- a) to eliminate risks to health and safety, so far as is reasonably practicable; and*
 - b) if it is not reasonably practicable to eliminate risks to health and safety, to minimise those risks so far as is reasonably practicable.*
- 2. A person must comply with subsection (1) to the extent to which the person has the capacity to influence and control the matter or would have that capacity but for an agreement or arrangement purporting to limit or remove that capacity.*

Western Australia

*Work Health and Safety Act 2020***17. Management of risks**

A duty imposed on a person to ensure health and safety requires the person –

- a) to eliminate risks to health and safety, so far as is reasonably practicable; and*
- b) if it is not reasonably practicable to eliminate risks to health and safety, to minimise those risks so far as is reasonably practicable*

Code of Practice (National)

Overview

An approved code of practice is a practical guide to achieving the standards of health, safety and welfare required under the WHS Act and the Work Health and Safety Regulations (the WHS Regulations). A code of practice applies to anyone who has a duty of care in the circumstances described in the code.

In most cases, following an approved code of practice would achieve compliance with the health and safety duties in the WHS Act, in relation to the subject matter of the code. Like regulations, codes of practice deal with particular issues and do not cover all hazards or risks that may arise. The health and safety duties require duty holders to consider all risks associated with work, not only those for which regulations and codes of practice exist.

Codes of practice are admissible in court proceedings under the WHS Act and Regulations. Courts may regard a code of practice as evidence of what is known about a hazard, risk or control and may rely on the code in determining what is reasonably practicable in the circumstances to which the code relates.

Safe Work Australia

How to Manage Work Health and Safety Risks – Code of Practice

Who has responsibility for managing work health and safety risks?

The WHS Act and Regulations require persons who have a duty to ensure health and safety to 'manage risks' by eliminating health and safety risks so far as is reasonably practicable, and if it is not reasonably practicable to do so, to minimise those risks so far as is reasonably practicable.

Persons conducting a business or undertaking will have health and safety duties to manage risks if they:

- engage workers to undertake work for them, or if they direct or influence work carried out by workers
- may put other people at risk from the conduct of their business or undertaking
- manage or control the workplace or fixtures, fittings, or plant at the workplace
- design, manufacture, import or supply plant, substances, or structures for use at a workplace
- install, construct or commission plant or structures at a workplace.

Deciding what is 'reasonably practicable' to protect people from harm requires considering and weighing up all relevant matters, including:

- the likelihood of the hazard or risk concerned occurring
- the degree of harm that might result from the hazard or risk
- knowledge about the hazard or risk, and ways of eliminating or minimising the risk
- the availability and suitability of ways to eliminate or minimise the risk, and
- after assessing the extent of the risk and the available ways of eliminating or minimising the risk, the cost associated with available ways of eliminating or minimising the risk, including whether the cost is grossly disproportionate to the risk.

The process of managing risk described in this Code will help you decide what is reasonably practicable in particular situations so that you can meet your duty of care under the WHS laws.

Officers (for example company directors) must exercise due diligence to ensure that the business or undertaking complies with the WHS Act and Regulations. This includes taking reasonable steps to:

- gain an understanding of the hazards and risks associated with the operations of the business or undertaking
- ensure that the business or undertaking has and uses appropriate resources and processes to eliminate or minimise risks to health and safety.

A person can have more than one duty and more than one person can have the same duty at the same time

Australian Dragon Boat Federation

Risk Appetite Statement

<i>Approach to Risk</i>	
Key Activity	Risk Appetite Statement
Health, Safety and Environment	<p>AusDBF is committed to creating a safe working environment for all its staff and clients, where people are protected from physical and psychological harm. There is no appetite for compromising employee, client or the public's safety and welfare. AusDBF puts the wellbeing of people above all other considerations.</p> <p>It is not the AusDBF's intention to avoid inherently risky activities which are part of running the organisation; however, a strong culture of health and safety awareness and risk management is expected of all staff. This includes identifying and managing health and safety risks to the best extent possible. AusDBF has a strong interest in protecting and preserving the environment, hence has a low appetite for activities that significantly degrade the environment. There is a moderate risk appetite for decisions that consider opportunities to create an environmentally sustainable future.</p>

Table 4- Excerpt from Risk Appetite Statement (Approach to Risk)





<i>Approach to Risk</i>			
	No Appetite		Low Appetite
<i>Accepts No Risk</i>		<i>Accepts as little risk as possible and takes a cautious approach towards taking risk</i>	
<ul style="list-style-type: none"> • Compromising staff, client or public safety and welfare 		<ul style="list-style-type: none"> • Activities which significantly degrade the environment 	
	Moderate Appetite		High Appetite
<i>A balanced and informed approach to risk taking</i>		<i>A more aggressive approach to taking risk for increased benefit or to achieve AusDBF's strategy</i>	
<ul style="list-style-type: none"> • Decisions that promote and consider opportunities to create an environmentally sustainable future 		N/A	

Table 5- Excerpt from Risk Appetite Statement (Detailed)

Other Studies and Research Papers

Surf Life Saving Australia³

Background

The PPE project commenced following the tragic death of Saxon Bird at the 2010 Australian Championships in Queensland. The subsequent Coroner's findings recommended: "...that SLSA collaborate with the designers of such devices (floatation vests) with a view to making the wearing of them compulsory once the organisation is satisfied they are suitable. Consideration should also be given to the use of helmets by competitors in surf craft events", QLD State Coroner Barnes (August 2011)

The SLSA PPE Project represented the organisation's response to this recommendation. SLSA considered the use of PPE in a holistic risk management framework. A great deal of other risk control measures beyond the scope of this project has occurred that reduce risks to members.

The use of PPE was recommended to further minimise the residual risks that exist following the implementation of these controls. This approach recognised that PPE is the least effective, though still important, component of the hierarchy of controls for risk mitigation.

When selecting and considering the use of PPE for use, SLSA (like AusDBF) are required by Safe Work Australia to:

- Conduct a detailed evaluation of the risk and performance requirements for the PPE
- Assess the compatibility of PPE items where more than one type of PPE is required
- Consult with suppliers to ensure the PPE is suitable for the work and workplace conditions
- Preference PPE that complies with the relevant Australian Standard or equivalent standards

Although other types of PPE and various devices were considered in initial stages of the project and their research and development was monitored, the project focused on the development of fit for purpose Lifejackets and Surf Helmets as defined in Coroner Barnes' recommendation.

Overview

In 2015 Surf Life Saving Australia commenced the Personal Protective Equipment (PPE) Project for Surf Sports. Surf Life Saving Australia (SLSA) has conducted this project to identify and develop suitable and fit for purpose Personal Protective Equipment (PPE) solutions that minimise risk to SLS members health and safety when they are participating in core SLS activities.

An independent assessment of surf sport related injury in Australia conducted by the University of New South Wales. The primary risk aiming to be mitigated via the employment of PPE is the catastrophic risk of drowning following incapacitation via a range of root causes and mechanisms

³ NOTE: The writer is the former Chief Risk Officer for Surf Life Saving Queensland from March 2014 to December 2019

PPE Objectives and Outcomes

The Project established the key objective and outcome of the PPE Project was to research and identify suitable personal protective equipment (PPE) that SLS members may use whilst undertaking or participating in SLS activities by:

1. Identifying the personal risks that SLS members face whilst undertaking or participating in SLS activities;
2. Identifying suitable PPE that may reduce this personal risk and may help to protect members against injury or death;
3. Trial and evaluate identified PPE using set criteria and methodologies;
4. Recommend suitable PPE for particular member groups and/or SLS activities;
5. Identify any gaps where SLS members may be at risk but there is no suitable PPE available in the current market.

Key Objective Findings and Application to Dragon Boat Activity

Personal Risk in Sports Activities

Dragon Boating (like surf lifesaving activities) occur in an inherently hazardous conditions that present a possible drowning risk. This environment also has dynamic hazardousness dependent on prevailing environmental conditions, and consideration should be given to this.

Although most Dragon Boat participants undertake training and some clubs require annual proficiencies to demonstrate competence in aquatic skills, should an individual be rendered unconscious or incapacitated they are at a high risk of drowning. Any delays to emergency response for an unconscious or incapacitated individual significantly and exponentially increase the likely severity of the injury until the point where revival is unlikely and the rescue operation is transitioned into a recovery operation.

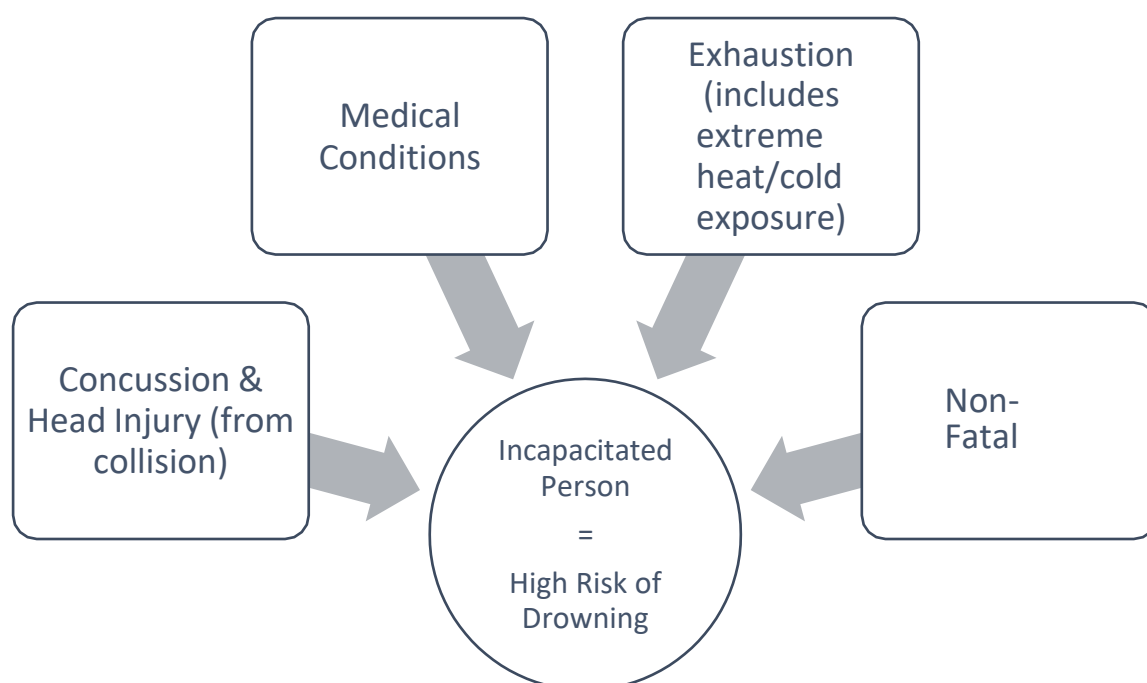


Figure 1- Contributing Risk Factors

Effectiveness of Control

In essence the SLSA project reviewed the effectiveness of the proposed control strategy of the use of lifejackets. They noted that lifejackets globally have been recognised as being one of the most effective PPE level controls against drowning.

The use of a lifejacket or personal floatation device retains the person on the surface of the water to support an efficient recovery. It is also recognised that the lifejacket provides additional protection for the wearer regardless of the mechanism that renders them unconscious.

The characteristics of lifejackets and assessment (in a risk managed approach) of their effectiveness is outlined below:

Risk	Effectiveness on Likelihood	Effectiveness on Impact	Commentary
Incapacitation by any mechanism results in loss of consciousness in the water	The Lifejacket does not reduce the likelihood of incapacitation.	Following loss of consciousness the lifejacket retains the wearer on or close to the surface enabling swift recovery and provision of emergency care reducing the potential severity of the incident.	The wearing of lifejackets is beneficial as it more effectively reduces the potential severity of a broad range of potential hazards that may render an individual unconscious in the water.

Table 6- Control Effectiveness

Summary of Recommendations⁴

Based on the assessment of available evidence, consultation with members and key stakeholders, information contained in the final PPE Project Report for Surf Sports, and the consideration of SLSA Management the following recommendations provided to the SLSA Board were

6. That the wearing of SLSA approved Level 25 Lifejackets was mandated in surfboat, surf ski, and board competition during periods of heightened risk as determined through a recognised risk assessment.
 - a) The risk assessment process and precise heightened risk threshold is to be determined through a research project and consultation with stakeholders.
 - b) That the policy be introduced for all specified disciplines.
7. That the wearing of Level 25 Lifejackets was recommended in both formal and informal craft training sessions (surfboat, surf ski and board) and incorporated into the SLSA Water Safety Policy.
8. That SLSA amended all necessary policies, rules, and guidelines to accommodate the introduction of PPE including the development of a unified SLSA Policy on PPE to consolidate changes currently established via Circulars and Bulletins.

⁴ NOTE: There were other Non-PFD related recommendations that the writer has not included.

Adverse Dragon Boat Incidents

Gold Coast, Australia – March 2016

Incident Overview:

- Carol Waitohi, a 50 year old female was paddling with 15 others
- She fell overboard unobserved by fellow crew members
- Her body not located until the following day
- Coronial Investigation found that she had suffered an aneurism
- While not a specific finding, several suggestions were made by QPS and other agencies that the use of a PFD would have assisted in the easier retrieval Carol's body and while it was determined that she was deceased before she fell into the water the trauma with the associated delay for her family and friends

Præstø, Denmark – February 2011

Incident Overview:

- 13 students and two teachers from a local high school were paddling in the harbour of Præstø in their dragon boat to break a record set by other students two days before.
- The boat capsized due to adverse weather conditions, specifically the wind.
- No one on board had mobile phones or a radio and the students swam to shore.
- The incident killed one of the teachers and injured most of the students, leaving several of them in permanent care.
- The body of the teacher, who was not wearing a lifejacket, was found over seven weeks later on April 3.

Borocay, The Philippines – September 2019

Incident Overview:

- Four male and three female paddlers drowned when their dragon boat was suddenly lashed by strong waves and overturned in the central Philippines.
- The initial report to the Coast Guard was that there were 21 people on board when the incident occurred.
- After the incident the Philippines Dragon Boat Federation made a statement that it encourages participants to use personal floating devices for additional safety.

Phnom Penh, Cambodia – November 2007

- The Singaporean national Dragon Boat were taking part in the ASEAN-Cambodia Traditional Boat Race.
- After the race, the team were paddling back to the docking point as “extra practice” like other teams were doing.
- As the team approached the pontoon which marked their docking point, their boat suddenly collided sideways with the pontoon due to a strong wave.
- This collision had caused their entire craft to sink into the water.
- The strong undercurrents of the Tonle Sap river created “mini-whirlpools” that caused the team members to struggle to stay afloat.
- The police boats present at the scene were only able to rescue 17 of the team Singapore paddlers, while 5 paddlers remained missing.
- Despite an elite team of divers being called in, it took nearly two days to retrieve the same.
- Authorities found that the mud of the river at the confluence of the Tonle Sap River, Tonle Bassac River and Mekong River.
- 5 days after the incident the Singapore Dragon Boat Association (SDBA) imposed a new regulation in which life jackets had to be worn at all times.
- Post the incident, the International Dragon Boat Federation guidelines for race organisation, compliance and safety needed to be followed at all times and instances where the IDBF guidelines are not met in part or in full, an authoritative figure must assess if the team should still compete and what measures must be adopted to mitigate the risk of participation.

Analysis and Application

Marine Legislative and Government Regulations

While we live in a modern “first world” country, there is significant differences across the marine safety related legislative instruments as to the wearing of PFDs, the definition of dragon boats across all of the states and territories. That being said that there are areas of significant alignment.

While some states have specifically mandated PFDs for the categories of vessel that Dragon Boats fit in to, this is not mandated nationally. What is generally consistent across Australia is the following:

- The “mandating” of PFD should be left up to the individual organisation;
- PFD’s should be worn in “heightened risk” environments, and most of the relevant state and territory transport regulators agree that heightened risk includes:
 - Operating between Sunset and Sunrise
 - When training without safety or rescue boats
 - During adverse weather
 - Other issues as determined by a detailed risk managed approach

Work Health and Safety Legislative and Government Regulations

Despite the different states and territory have their own health and safety legislation, all but Victoria have implemented legislation that addresses the National OHS Laws Harmonisation Project. That being said ALL states and territories have defined a specific duty of care for the management of risks to all workers for those in control.

The globally accepted “Hierarchy of Control” that is operationalised in the *How to Manage Work Health and Safety Risks – Code of Practice*, states that Personal Protective Equipment (PPE), which a PFD is, should be the final option.

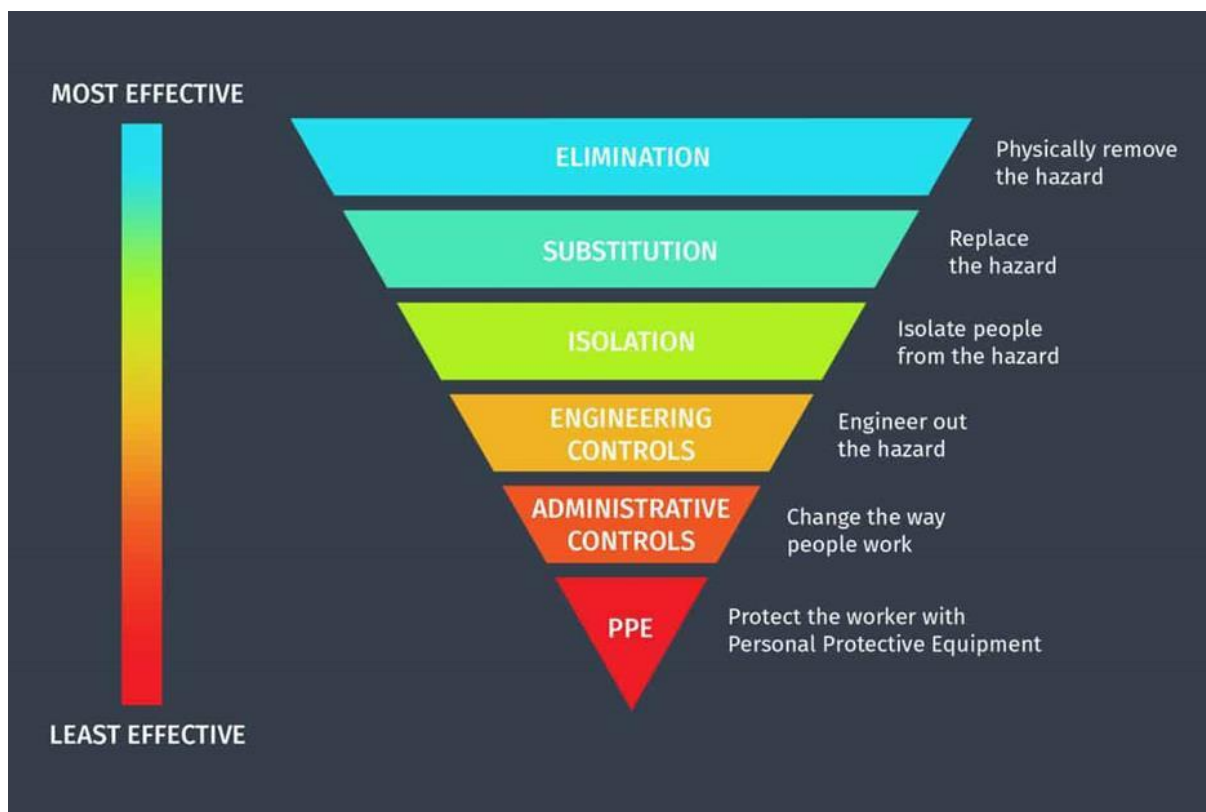


Illustration 1- Hierarchy of Control

The most effective risk mitigation strategy is “Elimination”, that is to physically remove the hazard. Using the Hierarchy of Control, the use of a Rescue or Safety Boat or Dragon Boats participating in a “regatta” or race environment would be considered “Isolation”, as these reduce the risk to the participants through the provision of a rapid response to any person overboard.

Where the higher level risk control cannot be implemented, the next most effective control should be implemented. In the Dragon Boat context, where participants are exposed to a heightened risk situation as defined above, a Type 50S compliant PFD is consistent with the provisions of the legislation and the Code of Practice.

AusDBF Risk Appetite Statement

The AusDBF Board approved The Risk Management Policy and Framework (RMPF) provide the structure for AusDBF to effectively manage our risks. This Risk Appetite Statement (RAS) is essential to the RMPF.

The objective of the RAS is to help us make decisions about risk. It provides guidance in terms of:

- The amount or level of risk that AusDBF is willing to pursue, retain, accept, or tolerate to achieve our strategic and operational objectives;
- Embedding risk management as part of our decision making; and
- Ensuring that an appropriate level of risk taking is being applied in our daily operations.

The RAS states categorically that the Australian Dragon Boat Federation, “... is committed to creating a safe working environment for all its staff and clients, where people are protected from physical and psychological harm. There is no appetite for compromising employee, client or the public’s safety and welfare. AusDBF puts the wellbeing of people above all other considerations...”

In the simplest of terms, AusDBF accepts no risk for anything that compromises the safety of people. Given the aforementioned, in a heightened risk environment, or where a more effective control is unable to be implemented, the use of a compliant Personal Floatation operationalises the risk appetite statement.

SLSA Report on PPE and Incident Reviews

Given the similarities with Surf Boats and Dragon Boats, the report provides some specific and transferable findings. One of the key recommendations is that PFDs should be used in surf boats where there is an heightened risk.

While the writer accepts that the use of a PFD does not reduce the likelihood, following loss of consciousness the lifejacket retains the wearer on or close to the surface enabling swift recovery and provision of emergency care reducing the potential severity of the incident.

The common observation or learning from each of the detailed adverse incidents is that Dragon Boating occurs in an inherently hazardous that present a possible drowning risk. This environment also has dynamic hazardousness dependent on prevailing environmental conditions.

The fact that PFD's, or more importantly the lack thereof, was deemed a contributing factor in the delay in retrieval of deceased participants or had PFDs been worn the fatality probability would have reduced cannot simply be ignored. While the writer is aware that there are numerous "reasons" for not wanting to wear a PFD, not of these hold any real bearing on the fact that a slight discomfort that could reduce adverse outcomes for not just individual members, but their families, friends, spectators, and the sport as a whole.

Recommendations

Given the information detailed in this advice the writer's recommendations to the Australian Dragon Boat Federation are:

1. Draft, endorse and implement a national policy that:

a) Where training is occurring where there is a heightened risk; defined as:

- i. Operating/training between sunset and sunrise;
- ii. Adverse hazardous weather conditions; or
- iii. Without a rescue or safety boat

That it is MANDATORY for ALL sweeps and drummers to wear a personal floatation device (PFD)⁵; this also applies to any participant that cannot swim 100m, who must also wear a PFD.

Where the activity is taking place in a regatta or racing setting or if there is a rescue or safety boat, the mandate is optional.

⁵ That meets the requirements of a 50S or Level 3 as defined in Australian Standard (AS) 4758