

# Paddlesport Safety Culture in Ireland

## An Exploratory Study



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# Executive Summary

Anecdotally, paddlesports (canoeing, kayaking, stand-up paddleboarding, and rafting) are seen as safe sports, though prior to this report little evidence was available to support this view in an Irish context. This report provides a summary of a research project exploring safety practices in Irish paddlesports. It includes the aim, objectives, research methodology, findings, and recommendations.

Discussions early in the research process about how to investigate safety practices in Irish paddlesports brought a number of objectives into focus. It was agreed to compile empirical evidence on current safety practices across Irish paddlesports and to determine what, if any, additional supports may be required to increase levels of safety.

Multiple methods were utilised to address these objectives and generate data for this study. Initially, a desk review of relevant legislation and regulations was undertaken, before two surveys were distributed to the Irish paddling community – one for paddlers and one for clubs. 256 responses from paddlers were received and 14 clubs responded.

Overall, this study found that paddlesports safety is good, with the majority of paddlers exhibiting high levels of safety awareness. A number of areas were identified, where paddler safety could be enhanced. These areas included reviewing and adding to Canoeing Ireland's three golden rules of safety to further align with current legislation, standardising club safety documentation, and implementing a national database to record accidents and near-misses. Canoeing Ireland's position on solo paddling may also require review, and a focus on the effects of climate change and its potential impacts on paddler safety may also be pertinent.

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# 1. Introduction

Paddlesports may be defined as a water sport that requires a person (or people) to propel and navigate a small vessel through and across a water body using a paddle. Traditionally this incorporates the sports of canoeing and kayaking. However, as adventure activities have evolved it can now also be taken to incorporate Stand up Paddleboarding, Sit-on-Top kayaking<sup>1</sup>, dragon boating and rafting. Rafting, dragon boating, and other emerging paddlesports were not considered in this report.

Paddlesports participation ranges from those trying the sport once through an outdoor adventure centre or provider, and fair-weather family recreation paddlers, to competition-focused elite paddlers. The governance of paddlesports in Ireland is primarily with [Canoeing Ireland](#), though [Irish Surfing](#) do also cover aspects of paddleboarding. Trying to quantify, or simply estimate, the number of people who participate in paddlesports is somewhat challenging. Combining Canoeing Ireland and Irish Surfing membership figures, for example, would suggest the Irish paddling population is around 5,000 to 6,000<sup>2</sup>, while the number of participants on social media sites facilitating sharing of information and the sale of equipment would put participation rates at multiples of the NGB memberships.

Across the multiple disciplines within paddlesports, there appears to be a tacit acknowledgement of paddlesports as being relatively safe as an adventure sport. However, there is little empirical evidence to support such a claim within an Irish context, and with paddlesports equipment, notably paddleboards and inflatable kayaks easily available through supermarket chains, accurate safety data may be timely. The existing evidence of unsafe practice comes from three major sources, namely Marine Casualty Investigation Board (MCIB) reports, media reports (sometimes based on MCIB reports), and Royal National Lifeboat Institute (RNLI) and Coastguard press releases or call out data. The MCIB, RNLI, or Coastguard reports are usually focused on a specific accident or near-miss, and do not allow for a broader understanding of the more general safety practices and culture of

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<sup>1</sup> Sit on tops will be taken to be a subclass of kayaking from here on in, and so will be covered under the collective term kayaking.

<sup>2</sup> Across 92 Canoeing Ireland clubs in 2022.

paddlesports in Ireland. MCIB reports are also usually a follow up to an emergency service response, where there has been an incident that could, or did involve serious injury or a fatality, though not all incidents may merit a MCIB investigation<sup>3</sup>.

This report originated when Canoeing Ireland approached Dr. John Pierce, Munster Technological University (MTU) and Kevin O'Callaghan, Atlantic Technological University (ATU) regarding a research funding call from Sport Ireland's Research and Innovation Unit. An application was submitted through this funding call and, once approved, the research planning began. During this planning phase we noted further support for this research study from two places. First, the Marine Casualty Investigation Board (MCIB) have posed questions regarding paddlesport safety culture in recent investigations into marine casualties in Irish waters and in their annual reports. Second, an ATU undergraduate dissertation (McCullough, 2018) that had previously explored sea kayaking incidents and the interpretations of an accident and a near-miss in the sport also posed some questions around safety in paddlesports.

It is worth noting here that the research team was hired to work on this report independent of Canoeing Ireland. While communication was continuous between the research team and Canoeing Ireland officers, it is possible that specific work already underway within the NGB on related topics may have been overlooked as the ongoing operations of Canoeing Ireland were not the focus of this inquiry.

### Purpose of this Report

The purpose of this report was to review current paddlesport safety practice(s), by surveying clubs and individual paddlers within the paddlesports community in Ireland. This quantitative data provides initial baseline data as to the level(s) of safety within the sport. The report also provides recommendations for how to develop and improve safety within

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<sup>3</sup> The MCIB usually considers all incidents reported or investigated by other state agencies and then decides if an investigation is warranted.



the sport. MCIB reports and relevant National and European legislation and regulation also informed this study.

The overall aim of this report was to investigate safety practices<sup>4</sup> in Irish paddlesports. To focus this research, three objectives were agreed:

1. To compile empirical evidence of safety practices across Irish paddlesports.
2. To identify the current safety practices within Irish paddlesports.
3. To determine if, and what, additional safety supports need to be provided to clubs and individual paddlers.

A multi-faceted approach was adopted to achieve the above aim and objectives including:

- a) A desk review of relevant legislation and regulation pertinent to paddlesports in Ireland.
- b) A National survey of individual paddlers focused on their safety practices and awareness.
- c) A National survey of club safety systems and practices.
- d) A document analysis of a sample of club safety documents, procedures, and policies.

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<sup>4</sup> Focused on technical safety. Other aspects of safety, such as child protection or garda vetting, for example, were not within the scope of this research.

## 2. Research Methods

This chapter presents an overview of the methods used to gather the research data and how this data was analysed. A number of research methods were combined to meet the aim and objectives of this study to investigate safety practices in Irish paddlesports, namely a) a desk review of National and other legislation and regulations, b) a paddler’s survey, c) a club survey, and d) a document analysis of a sample of club safety documents, procedures, and policies.

Both the paddler and club surveys were live for one month (between June and July, 2023). A total of 247 valid responses were submitted to the paddler survey, and 14, out of 92, clubs responded to the club survey. This represents a response rate of 5% of the Canoeing Ireland membership (as well as 29 non-members), and 15% of clubs, respectively.

*Table 1: Summary of data collection, analysis, and verification*

| Data Collection Method               | Sample Population  | Analysis Method                        | Data Verification                      |
|--------------------------------------|--|--|--|
| <b>Desk review</b>                   | Relevant National and European legislation and regulation documents. | Document review and analysis.          | Peer-review with research team.        |
| <b>Paddler survey</b>                | Paddlesports enthusiasts (247).                                      | Quantitative & descriptive statistics. | Quantitative: same as analysis method. |
| <b>Club survey</b>                   | Irish paddlesports clubs (14).                                       | Descriptive statistics.                | Peer-review with research team.        |
| <b>Club safety document analysis</b> | Irish paddlesports club safety documentation (6).                    | Comparative analysis.                  | Peer-review with research team.        |

### Desk Review

The desk review consisted of an analysis of relevant legislation and regulations in order to compile a definitive list of the regulatory responsibilities of a paddlesports enthusiast as well as a detailed analysis of the relevant MCIB reports. More detail on this can be found in section 3 and appendices 1 & 2.

## The Paddler Survey

The paddler survey contained 31 questions in two sections (see appendix 6). The first part of this survey, questions 1 through 23, was designed by the authors. The purpose of these questions was to gather demographic information, as well as data on accidents, near-misses, and solo paddling.

The second part of the paddler survey, questions 24 through 31, focused on safety culture and was developed from a number of pre-existing, and validated, surveys on safety perceptions. While these other surveys were not designed specifically for paddlesports, the questions were adapted to reflect aspects of paddlesports practice, while keeping the essence of the questions intact.

The majority of questions 24 to 31 in the second section of the paddler survey were taken from Ostrom, Wilhelmsen and Kaplan (1993). Of the original 88 questions in their survey, 27 were retained across 8 themes, see (table 2, below – questions 24-31). The decision was made to reduce the amount of questions to four per section so as to encourage respondents to complete the survey and to allow for a direct comparison of sections within the analysis. Surveys developed by Carder and Ragan (2003) and Weightman (2017) were then reviewed and additional relevant content was added, (3 additional questions in this case) to research safety measurements and perceptions of safety. Two further questions were added in by the authors. Appendix 3 provides an account of how these existing surveys were combined to create the likert-style questions in the paddler survey for Irish paddlesports. Table 2, below, provides a summary of the types of questions in the paddler survey.

*Table 2: A summary of the sections of the paddler survey*

| Question(s) | Information Sought  |
|-------------|---|
| 1           | Consent   |
| 2-4         | Basic demographics (age, gender, experience)  |
| 5-16        | Paddlesports membership and training  |
| 17-23       | Accidents, near-misses, and solo paddling   |
| 24-31       | Safety culture: awareness, teamwork, pride and commitment, good practice, communication and reporting, leadership and supervision, training, and safety effectiveness |

A number of questions were combined to provide an overall impression of safety. The two main examples used here in this inquiry were the scores for overall safety and applied safety.

- *The Overall Safety* score combines the 8 likert-style questions (see table 2, questions 24 through 31) and represents the safety awareness of respondents. Each possible answer to a question received a score, a higher score representing safer practice, with scores ranging potentially from 20 to 160. These scores were then split into four equally weighted categories of *Poor* (20-70), *Low* (71-100), *High* (101-130), and *Very High* (131-160).
- *Applied Safety* incorporated the accident and near-miss examples, as well as the scenario data (questions 18, 20, and 21, respectively). All of these components of the survey require a practical application of paddlesport safety knowledge to specific situations, which distinguishes them from the overall safety score as this could be considered theoretical. The scores in all three practical categories were combined into three fields. This allowed for a range of 3 through to 9 once the three variables were combined (see appendix 4 for a table detailing this work). These numbers were then combined into three final applied safety categories of *Low* (8-9), *High* (6-7), and *Very high* (3-5).

Descriptive statistics, namely crosstabs (which is a way of comparing two questions), were used to compare numerical variables in data from this survey. Comparisons and correlations between variables (questions) were recorded, such as the accuracy of a respondent's definitions of accidents and near-misses. A Chi squared tests for statistical significance was also carried out, where relevant.

In basic terms, if a Chi squared test comes back as significant (a p-value of 0.05 or lower) it means that the data is representative of a specific group, in this case the paddlesports community in Ireland, and not the result of chance or accident. Some of the findings included have a p-value above 0.05, and these were included as, even though they are not statistically significant the raw numbers provide useful data regardless. A detailed account of the descriptive statistic tests carried out can be found in Appendix 5.

## The Club Survey

The club survey had 24 questions, which were answered in all cases by one of the club committee officers. The focus of the club survey was to explore existing practices and procedures in relation to safety within clubs and how well these aligned with Canoeing Ireland's safety recommendations and existing legislation and regulations. The questions in the club survey are summarised in table 3, below.

*Table 3: A summary overview of the focus of the club survey*

| Question | Information Sought  |
|----------|---|
| 1        | Consent   |
| 2-7      | Basic demographics: committee position, province, membership, age of club, disciplines covered, equipment |
| 8-13     | Qualifications, leaders, reporting incidents, documentation audits, incident procedures                   |
| 14-17    | Safety meetings, development of safety documentation, safety and equipment reviews,                       |
| 18-22    | Accidents and near-misses, reporting and feedback, checklists   |
| 23       | Linkert scale question on safety  |
| 24       | Contact details   |

## Club Safety Document Analysis

Six of the 14 clubs that completed the survey agreed to share some of their club's safety documentation (for example, safety statements, risk assessments, members safety booklets) with us. Any documentation relevant to safety that was shared by the clubs was deemed valid in this instance. We conducted a simple read through of the documentation with a focus on exploring what was addressed within the documents in terms of their safety content. We also focused on their safety statements, accident and near-miss reporting, the content and detail within their risk assessments, and the alignment of any other documentation provided with Canoeing Ireland's golden rules, and the relevant legislation (for more details, see section 3 of this report).

## Ethics

Ethical approval for this research was gained through Munster Technological University's ethics committee (approval no.: MTU-HREC-MR-23-012-A). This research was carefully designed with steps taken to ensure anonymity, confidentiality, and the right to withdraw.

No personal data on individual paddlers was collected, and only clubs that volunteered to provide safety documentation were identifiable to the research team. All data was stored in an encrypted cloud server that only the research team had access to. Both surveys included a detailed information section at the beginning and the first question asked all participants if they consented to partake in the survey. Only those that agreed could continue with the survey (see appendix 6 and 7 for more details on the survey questions).

In terms of generalisability to other adventure sport contexts, this research was specifically focused on generating data on Irish paddlesports safety, with a specific focus on kayaking and canoeing related practices. It is reasonable to claim that other adventure sport NGBs in Ireland, and potentially internationally, could find themes and recommendations from this research that are useful to their context and circumstances.

Finally, as with all research inquiries, there are limitations to this study. Most notably, with the surveys, while the number of respondents does form a representative sample of the Irish paddling community, subgroups within the community, such as some of the competitive disciplines, dragon boaters, or kayak anglers, are not well represented. Invitation to participate was only sought through email and limited social media promotion, so specific subgroups were not targeted. This limitation also impacted upon the club safety documentation available, as the documentation was requested through the survey.



### 3. Paddlesports Safety Legislation and Regulation

This section introduces relevant maritime safety agreements and provides a brief overview of the legislation that has been enacted that is pertinent to recreational paddlesports.

#### Background to International agreements

Ireland signed up as a member of the International Maritime Organisation (IMO) in 1951. The IMO “is the United Nations specialized agency with responsibility for the safety and security of shipping and the prevention of marine and atmospheric pollution by ships” (International Maritime Organisation, 2019, para 1). The IMO publishes Safety of Life at Sea (SOLAS) regulations. SOLAS regulations are transposed into Irish legislation through the passing of an Act (of the Oireachtas) through the Irish legislature or through the introduction of a Statutory Instrument (SI) which facilitates minor changes, or updates, to existing legislation. In addition to legislation, there are voluntary codes of practice and guidelines aimed at paddlesport users that may be promoted by different local authorities, harbour authorities and/or National Governing Bodies (NGBs).

#### Desk Review

This desk review explored relevant legislation pertinent to Irish paddlesports and summarises the major safety implications for paddlesport practice stemming from same. While the legislation and regulation<sup>5</sup> concerning vessels on waterbodies is primarily concerned with commercial traffic, the focus here is on aspects of the Irish Shipping Acts and SOLAS that are applicable to paddlesports at a recreational level, which also includes competitive disciplines.

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<sup>5</sup> In general terms, legislation is the overall system for developing and ratifying laws, whereas regulations are more specific rules that can include oversight and/or enforcement.

Canoeing Ireland, as one of the main NGBs for paddlesports in Ireland, has three safety rules that it promotes and asks paddlers to adhere to. These are:

- Be able to swim.
- Always wear a buoyancy aid.
- Never paddle alone – less than 3 there should never be (Canoeing Ireland, 2022a).

These guidelines have been promoted by Canoeing Ireland for over three decades and it is reasonable to claim that any paddler that has been on a Canoeing Ireland training course has heard of these rules. Irish Surfing<sup>6</sup>, who include paddleboarding as part of their remit, do not provide similar safety rules on their website.

### Safety Definitions

To interpret the legislation and regulations accurately, we outline what specific safety terms mean in relation to paddlesports. First, we define the terms *incident*, *accident*, and *near-miss*. Second, we define how the current legislation defines *Irish waters* and a *marine casualty*.

With regard to incidents, accidents, and near-misses, the exact meanings can be contested and difficult to determine (Gnoni and Saleh, 2017). There is however, a distinction between incidents, accidents, and near-misses that is relatively consistent. The term *incident* generally includes both accidents and near-misses. Jones, Kirchsteiger and Bjerke (1999) noted that all three terms refer to events that are not expected in the normal course of practice, and define an accident as “an undesirable event resulting in injury or damage” (p. 59). They proceed to define a near-miss as an incident that had the potential to cause physical harm or damage but did not. These definitions are echoed in the adventure sports research where accidents and near-misses are similarly distinguished. In a study that identified risk factors in mountaineering accidents, for example, near-misses are also noted as not including a physical or emotional toll on the parties involved (Vanpouille, Vignac and Soulé, 2017, p. 39). It is also worth noting that analysing near-misses can be a crucial factor

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<sup>6</sup> A number of efforts were made to contact Irish Surfing for further information – phone calls and emails, but none were successful at the time of writing.

in preventing fatalities and other tragic accidents in the future (Gnoni & Saleh 2017; Vanpouille, Vignac & Soulé, 2017).

Based on the literature, we have adopted the following definitions for this study:

- An incident is **any unforeseen event that occurs**, including accidents and near-misses.
- An accident is an unforeseen event **that causes physical harm and/or damage to equipment**.
- A near-miss is an incident **that has the potential** for physical harm or equipment damage, **but neither occurs**.

Within Irish Legislation, paddlesport craft such as a canoe, kayak, or paddleboard are considered a vessel, as they are craft that are “...normally located or moored in Irish waters, [are] under the control of a resident of the State in international waters contiguous to Irish waters” (Merchant Shipping Act, 2000, p. 6). This Act defines Irish waters as “the territorial sea, the waters on the landward side of the territorial sea, and the estuaries, rivers, lakes and other inland waters (whether or not artificially created or modified), of the State” (Merchant Shipping Act, 2000, p. 6). Essentially, any water body within or around Ireland that someone paddles on is included in this legislation, and paddlers should be aware of their responsibilities under this, and other, Acts.

The same Act goes on to state that a marine casualty is defined as “an event or process which causes or poses the threat of—

- (a) death or serious injury to a person;
- (b) the loss of a person overboard;
- (c) significant loss or stranding of, or damage to, or collision with, a vessel or property; or
- (d) significant damage to the environment” (Merchant Shipping Act, 2000, p. 6).

In relation to paddlesports, this means that a marine casualty refers to potential or actual:

- serious or fatal injury to a person,
- damage to equipment or property, or

- environmental destruction

that occurs as part of a paddlesport trip or journey. From these definitions, it is apparent that all paddlesport craft fall within the remit of the Act(s). We (the research team) contacted the MCIB with regard to this matter and they confirmed that all such vessels (i.e. paddlesport craft) were governed under the Act.

It is worth noting here that injury or damage does not have to have actually occurred. It is enough that a specific moment or event had a high enough level of likelihood of injury, or for equipment damage or environmental destruction to occur. Risk is inherent in all paddlesports, so it would be unrealistic to suggest that every time a paddler is potentially at risk, and/or equipment or the environment could be damaged, that they were a marine casualty as per the legislation. It is improbable that a clear distinction could be made that would be applicable in every paddling situation, however it would be beneficial if Canoeing Ireland, and the wider community, agreed what a reportable marine casualty is in relation to paddlesports. This could require providing specific examples or case studies of potential accidents and near-misses for the different disciplines within the sport to clubs and on training courses to create more awareness among participants of near-misses and accidents. Including the Marine Casualty Investigation Board (MCIB) in such a discussion/agreement would be worthwhile.

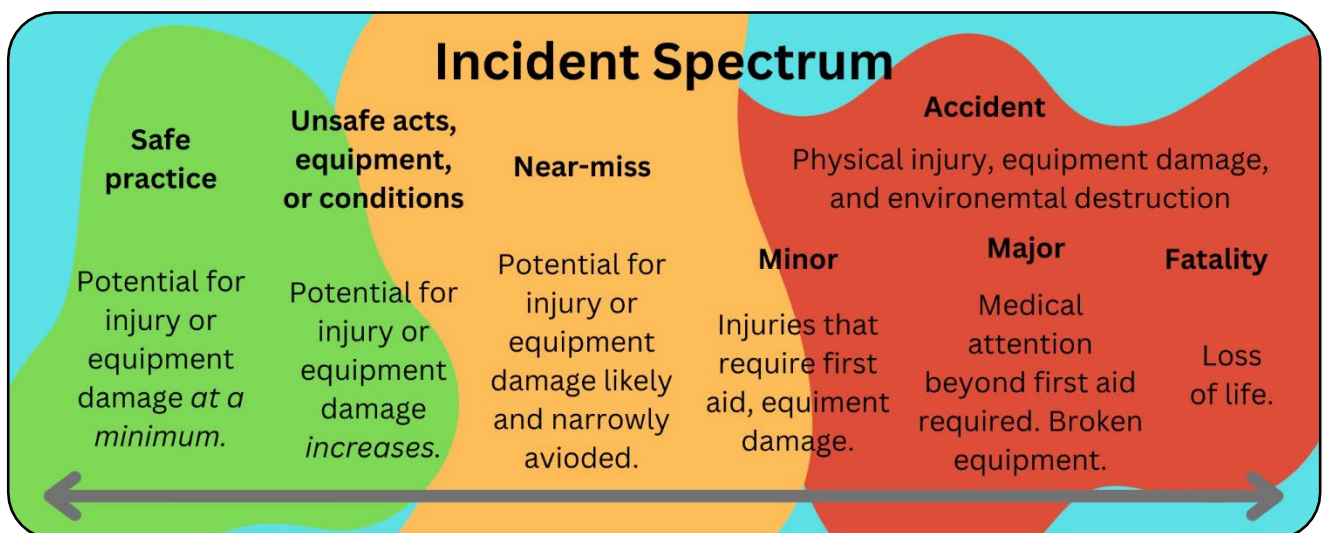


Figure 1: Proposed Incident Spectrum

In an effort to start this conversation, we propose the incident spectrum as outlined in figure 1, above. This spectrum highlights key sections from safe practice through to fatal accidents,

and some of the complex grey areas in between. We accept that a marine casualty may be found in both the yellow and red sections, and it is acknowledged that the consequences may vary dramatically, from a lost or damaged piece of equipment to a fatality.

### Safety Legislation Pertaining to Paddlesports

Perhaps the best source of information on relevant legislation and regulation for paddlesports may be found in the [Code of Practice for the Safe Operation of Recreational Craft<sup>7</sup>](#) (hereafter called the Code of Practice) (Department of Transport, Tourism and Sport, 2017)<sup>8</sup>. The Code of Practice was specifically developed for recreational water users in Ireland, and it interprets all of the relevant information from various legislation and presents it in one document. Some of the most relevant points from this document are summarised in table 4, below.

*Table 4: Summary of legislative and regulatory requirements for paddlesports*

| Legislation  | Legal requirements for paddlesports/<br>how it manifests as current practice  |
|--|---|
| SOLAS Chapter V – Safety of Navigation   | <ol style="list-style-type: none"> <li>1. Ensure that trips are planned.</li> <li>2. Notify a responsible person of the plan and start/finish times.</li> </ol>               |
| Pleasure Craft (Personal Flotation Devices and Operation) (Safety) Regulations 2005, as amended (S.I. No 921 of 2005 as amended by S.I. No 349 of 2012, as amended by Pleasure Craft (Personal Flotation Devices and Operation) (Safety) (Amendment) Regulations 2018 (by S.I. No. 400/2018) | <ol style="list-style-type: none"> <li>3. Wear a personal floatation device (PFD).</li> </ol>   |
| Merchant Shipping (Investigation of Marine Casualties) Act (No 14 of 2000) – Marine Casualty Investigation Board   | <ol style="list-style-type: none"> <li>4. Report any incident which qualifies as a marine casualty as soon as practical after it occurs to the MCIB.</li> </ol>               |
| Signals of Distress (Ships) Rules 2012 (S.I. No 170 of 2012)   | <ol style="list-style-type: none"> <li>5. Means and way of signalling distress.</li> </ol>  |
| Wireless Telegraphy (Ship Station Radio Licence) Regulations 2006 (S.I. No. 414 of 2006)   | <ol style="list-style-type: none"> <li>6. Carry at least one means of alerting help in the event of an incident (VHF<sup>9</sup>, PLB<sup>10</sup>, mobile phone).</li> </ol> |
| Maritime Safety Act 2005 (No. 11 of 2005) as amended   | <ol style="list-style-type: none"> <li>7. Right of the minister to issue Codes of Practice for compliance.</li> </ol>   |

<sup>7</sup> A copy of the full Code of Practice in one file can be downloaded [here](#). The Code of Practice contains more safety points related to paddlesports than could be summarised here.

<sup>8</sup> The publication of an updated Code of Practice is currently in press (October 2023)

<sup>9</sup> Subject to license, see <https://www.irishmaritimerradiolicensingsystem.gov.ie/> for more information.

<sup>10</sup> Must be registered with ComReg: <https://www.comreg.ie/industry/licensing/personal-locator-beacons/>

Comparing the legal requirements for recreational paddlers to the three golden safety rules promoted by Canoeing Ireland, (wear a PFD, be able to swim, and never paddle alone) only one of the existing rules correlates with legislative requirements, i.e. wear a PFD.

Points 1, 2, and 6 (planning of trips, having a shore agent/responsible person, and carrying a means of communication) though not part of Canoeing Ireland's golden rules, may still be standard practice in relation to safe paddling as it is covered by elements of the instructor training programmes. For example, the requirement to leave a TR (traffic report) with the coast guard for those journeying on the sea would be adhered to by most sea kayakers. Other items addressed within the award scheme include point 5 relating to knowing different ways of signalling distress are addressed in different sections of the award scheme.

Item 4 (reporting marine casualties) may be the least known to paddlers and could account for the ambiguity around which incidents have and have not been investigated within paddlesports by the Marine Casualty Investigation Board (MCIB).

The power of the Minister for Transport to issue Codes of Practice that must be complied with (item 7) is another potentially lesser-known item. The MCIB continually refer to non-adherence with the COP in paddlesport-related reports in their annual reports and marine notices. This is particularly pertinent as it potentially paves the way for the minister to introduce a more restrictive Code of Practice.

A national database for reporting accidents and near-misses could be a valuable tool for paddlesports to move towards meeting point 4. Other bodies such as the Mountain Training Board of Ireland (MTBI) and NGBs such as the American Canoe Association and Paddle Australia maintain such databases and review incidents annually.

These seven requirements in table 4, as outlined in the Code of Practice, apply to all paddlesports disciplines as SOLAS V specifies that “[a]ll ships means any ship, vessel or craft irrespective of type and purpose” (IMO, 2023, 2.3), in addition to Irish legislation which also pertains to all recreational craft (see page 15).



## Marine Casualty Investigation Board

The MCIB, as per the framework set out in the Merchant Shipping (Investigation of Marine Casualties) Act, 2000, has a statutory role “to examine and if necessary carry out investigations into all types of marine casualties to, or on board, Irish registered vessels worldwide and other vessels in Irish territorial waters and inland waterways” (MCIB, 2023, para 1). A summary of published reports to date relating to paddlesports are provided in table 5, below. There were no other investigations in relation to paddlesports underway at the time of writing (September 2023). Tables 6 and 7 further breakdown the MCIB reports in terms of the type of trip (commercial, club, or private), and the environment (sea, river, or lake), as well as severity (fatal or non-fatal).

Before going any further, we would like to make a brief point regarding paddleboarding. Paddleboarding currently occupies a contested space within paddlesports as it is represented by more than one National Governing Body for sport in Ireland, namely Canoeing Ireland and Irish Surfing (see Appendix 8 for more details). Recent figures from the UK show a 64% increase in RNLI callouts in 2022 compared to 2021 (RNLI, 2022). Further to this, the Marine Accident Investigation Branch (the UK equivalent to the Irish Marine Casualty Investigation Board) recommended that the UK National Sports Councils “identify the best organisation(s) to act as the national governing body for the sport of stand up paddleboarding” (MAIB, 2022, para 4). If a paddleboarding tragedy were to occur in Irish waters, a similar recommendation could be put to Sport Ireland<sup>11</sup>.

Points of note from the analysis of MCIB reports include:

- From 2004 to 2023, 13 people have lost their lives in 10 incidents investigated by the MCIB in relation to paddlesports<sup>12</sup>.
- Only 3 non-fatal incidents were investigated. This is in line with the definition of a marine casualty as discussed previously.
- Of the 14 investigations covered by the MCIB reports, 10 pertain to inland waters (7 river and 3 lake) and 4 are sea related.
- 50% of the MCIB paddlesport investigations have been of river incidents, all fatal.

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<sup>11</sup> Paddleboarding has subsequently come under the remit of British Canoeing.

<sup>12</sup> Figures for fatalities not investigated by the MCIB are not included here.

- 50% of the MCIB investigations were on private trips (not led by a club or commercially entity), all of them fatal.
- The 3 non-fatal investigations all related to sea trips led by commercial providers.
- MCIB reports continually refer to the Code of Practice for recreation craft developed by the department of the marine in conjunction with Canoeing Ireland and other National Governing Bodies (NGBs).
- Since 2021 there is a change in the way in which risk assessment is addressed within the reports, where there is a recognition of dynamic risk assessment. This is a direct result of the MCIB's close working relationship with Canoeing Ireland.

*Table 5: A summary of published MCIB reports to date relating to paddlesports.*

| Report No. | Reports <sup>13</sup>  | Date       |
|------------|--|------------|
| MCIB/318   | Report of an Investigation into an Incident Involving Kayakers on Mulroy Bay, Co. Donegal                                  | 18/05/2023 |
| MCIB/296   | Investigation into a Fatal Incident involving Kayakers on the Upper Caragh River, Glencar, Co. Kerry                       | 28/02/2023 |
| MCIB/304   | Report into an Incident Involving Kayakers at Bulloch Harbour/Dalkey Island, County Dublin                                 | 28/10/2021 |
| MCIB/283   | Report of Investigation into a Fatal Incident involving a Kayaker on the Roughty River                                     | 25/09/2019 |
| MCIB/275   | Report of Investigation into a Fatal Incident on the River Suir, Cahir, Co Tipperary                                       | 17/07/2019 |
| MCIB/285   | Fatal incident involving Kayaker on Lough Gill, Co Sligo   | 30/01/2019 |
| MCIB/241   | Inchavore River Kayaking Incident  | 10/09/2015 |
| MCIB/203   | Report of Investigation into an incident involving the Neptune Outdoor Education Centre off Clogher Head, Co. Louth        | 17/09/2012 |
| MCIB/188   | Report of investigation into fatal incident off Castletownshend, Co. Cork  | 09/06/2011 |
| MCIB/180   | Report of Investigation into fatal incident on the Clodagh River, Co. Waterford  | 26/04/2011 |
| MCIB/155   | Report of the Investigation into the death of kayaker on the River Gaddagh, Co. Kerry                                      | 07/04/2009 |
| MCIB/156   | Report of the investigation into the death of Mr. Tomás Mannion on Lough Derg  | 24/03/2009 |
|            | Report of the Investigation into the Death of Mr. John Buckley on Lough Derg   | 05/12/2006 |
|            | Report of the Investigation into the Deaths of Mr. Martin Roche and Mr. Neil Byrne at St. Mullins Weir on the Barrow River | 01/09/2005 |

<sup>13</sup> All reports can be downloaded [here](#).

Table 6: Number of MCIB reports by fatal and non-fatal incidents.

|              |            | Fatal     | Non-fatal |
|--------------|------------|-----------|-----------|
| <b>Sea</b>   | Commercial | -         | 3         |
|              | Club       | -         | -         |
|              | Private    | 1         | -         |
| <b>River</b> | Commercial | 1         | -         |
|              | Club       | 3         | -         |
|              | Private    | 3         | -         |
| <b>Lake</b>  | Commercial | -         | -         |
|              | Club       | -         | -         |
|              | Private    | 3         | -         |
| <b>Total</b> |            | <b>11</b> | <b>3</b>  |

Table 7: Number of MCIB reports by environment and user type.

|                   | Sea      | River    | Lake     | Total     |
|-------------------|----------|----------|----------|-----------|
| <b>Commercial</b> | 3        | 1        | -        | <b>4</b>  |
| <b>Club</b>       | -        | 3        | -        | <b>3</b>  |
| <b>Private</b>    | 1        | 3        | 3        | <b>7</b>  |
| <b>Total</b>      | <b>4</b> | <b>7</b> | <b>3</b> | <b>14</b> |

Table 8, below, provides a summary of the recommendations from the 14 paddlesport-related MCIB reports.

A number of points in relation to safety from the analysis of these reports include:

- The recommendation cited most, in 9 of the 14 reports, is a *lack of compliance with the Code of Practice for the Safe Operation of Recreational Craft*. There are also 2 further recommendations that *Code of Practice training be included within the Canoeing Ireland training schemes*. Compliance with the COP is a legal requirement.
- *The need to undertake basic training*, as well as the need to *conduct more risk assessments* are also frequent recommendations (5 out of 14).
- *Using equipment appropriately* and the *lack of adherence to the legal requirement to carry a means of communication* are both recommended 4 times each.
- The three golden rules that Canoeing Ireland promote feature infrequently in the recommendations.

- In later reports (2021 onwards), the MCIB address Canoeing Ireland specifically rather than making recommendations to the sporting body<sup>14</sup> in general.

Analysis of the MCIB reports suggests that following the Code of Practice and Canoeing Ireland guidelines, and completing training to appropriate levels may reduce the risk of marine casualties occurring. The other significant feature from the MCIB report analysis is that Canoeing Ireland's 3 golden rules appear to be effective, as they are not featured in recommendations to be addressed. Revising and promoting additional golden rules could help to further encourage safe paddlesport participation and facilitate compliance with the legislation.

## Conclusions

Over time legislation and regulations have been evolving and the regulatory responsibilities of paddlers have evolved accordingly. An organisational risk to Canoeing Ireland that should be noted is that within the previous three MCIB annual reports (2023; 2022; 2021), the MCIB refer to the non-compliance of paddlers with the Code of Practice. Three marine notices have been published ([37 of 2022](#), [30 of 2020](#), and [31 of 2019](#)) to highlight this further. It is possible that if further fatalities occur in the paddlesports community, and the sector is not seen to be addressing the issue of safety in paddlesports, that the Minister for Transport could force change through regulations. This would be possible under section 20 of the Merchant Shipping Act 1992, as amended by the 2000 Act.

While Canoeing Ireland have long promoted the 3 golden rules, these need to be updated to reflect the evolving National legislation and other regulations that Ireland has signed up to. One good example of more detailed safety information for paddlesports can be found on, for example, the safety section of the [Paddle Australia](#) website.

Within the MCIB reports relating to paddlesport incidents, 9 of the 14 reports recommend that Canoeing Ireland address and bring to their member's attention the Code of Practice. As this document covers all recreational craft, a more concise version specific to paddlesports

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<sup>14</sup> Sporting body here is the general body of paddlesport participants, most of whom will not be members of Canoeing Ireland

Table 8: MCIB recommendations.

|   | MCIB/<br>318 | MCIB/<br>296 | MCIB/<br>304 | MCIB/<br>283 | MCIB/<br>275 | MCIB/<br>285 | MCIB/<br>241 | MCIB/<br>203 | MCIB/<br>188 | MCIB/<br>180 | MCIB/<br>155 | MCIB/<br>156 | L. Derg<br>2006 | Barrow<br>2004 | Total |
|---|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-----------------|----------------|-------|
| Comply with Code of Practice                | ✓            | ✓            | ✓            | ✓            | ✓            | ✓            | ✓            |              |              |              |              | ✓            | ✓               |                | 9     |
| Undertake basic training                    |              |              |              |              |              | ✓            |              |              |              | ✓            |              | ✓            | ✓               | ✓              | 5     |
| Carry out full risk assessment              | ✓            |              |              |              |              |              |              |              |              | ✓            |              | ✓            | ✓               | ✓              | 5     |
| Understand limitations of equipment         |              |              |              |              |              | ✓            |              |              |              |              |              | ✓            | ✓               | ✓              | 4     |
| Carry means of communication                |              |              |              |              |              | ✓            | ✓            | ✓            |              |              | ✓            |              |                 |                | 4     |
| Mandatory audits/compliance                 | ✓            | ✓            | ✓            |              |              |              |              |              |              |              |              |              |                 |                | 3     |
| Danger notices                              |              |              |              |              |              |              |              |              |              | ✓            |              |              |                 | ✓              | 2     |
| Include Code of Practice in training scheme |              | ✓            | ✓            |              |              |              |              |              |              |              |              |              |                 |                | 2     |
| Notify a responsible person                 |              |              |              |              |              |              |              |              |              |              |              | ✓            | ✓               |                | 2     |
| Wear appropriate equipment                  |              |              |              |              |              |              |              |              |              |              |              |              |                 | ✓              | 1     |
| Need for pre-planning and scouting          |              |              |              |              |              |              |              |              |              |              | ✓            |              |                 |                | 1     |
| Install lifesaving equipment                |              |              |              |              |              |              |              |              |              | ✓            |              |              |                 |                | 1     |
| Groups of at least 3                        |              |              |              |              |              |              |              |              | ✓            |              |              |              |                 |                | 1     |
| Weather forecast limits                     |              |              |              |              |              |              |              | ✓            |              |              |              |              |                 |                | 1     |
| Be able to swim                             |              |              |              |              |              | ✓            |              |              |              |              |              |              |                 |                | 1     |
| Audit operating systems                     | ✓            |              |              |              |              |              |              |              |              |              |              |              |                 |                | 1     |
| Other <sup>15</sup>                         | ✓            | ✓            | ✓            |              |              |              |              | ✓            | ✓            | ✓            | ✓            |              |                 |                | 7     |

<sup>15</sup> For a list of the points covered in the *Other* category, see appendix 5.

should be considered. This could more easily promote the safe practices within the Code of Practice to the paddlesports community. Presently, the Code of Practice is not available through Canoeing Ireland's website as the Code of Practice does not fully align with Canoeing Ireland's guidelines. For example, in order to address all items within the Code of Practice for recreational craft, elements of Canoeing Ireland's award scheme may need revision to reflect and promote the increased regulatory responsibility of paddlers. Canoeing Ireland and the Department of Transport, Tourism and Sport should consider agreeing consistent guidelines for paddlesport safety.

NGBs elsewhere that have not been proactive in advocating safe practice and have had regulatory practices imposed on them. For example, the American Canoe Association (ACA) found that some reporting practices imposed on them were not designed specifically for paddlesports (Walbridge & Tinsley, 1996). Canoeing Ireland promotes a high level of safety across its membership, though does not have any regulatory powers to enforce the NGB's, or the Code of Practice's, guidelines.

Sea paddling incidents appear less frequently than inland water incidents, we hypothesise that many sea paddlers may be more conversant with marine regulations as many of the safety guidelines such as logging a traffic report (TR), planning, and carrying other means of communication (VHF, PLB, EPIRB) are covered within Canoeing Ireland's sea skill awards.

Within the MCIB reports all commercial paddlesport trips investigated have been sea journeys. It is evident from the reports that in all cases the trip leaders did not have relevant or appropriate sea kayak qualifications, and in one incident no qualifications or instructor training to any level.

## Recommendations

It is recommended that Canoeing Ireland:

1. Promote consistent safety guidelines between Canoeing Ireland and the Code of Practice to alert paddlers (clubs and individual paddlers) to their responsibilities, in line with MCIB recommendations.



2. Develop a summary of all relevant safety requirements (legal and NGB specific) and make this available on the Canoeing Ireland website.
3. Review its existing 'golden rules' and adapt/revise them if required to be more relevant to its membership and in line with relevant legislation and regulation.
4. Audit and revise where appropriate the Canoeing Ireland award schemes to ensure that they are compliant with regulations and legislation pertinent to recreational paddling and consider including Code of Practice information in training. As part of this Canoeing Ireland will need to:
  - Promote and ensure that the paddling community are aware of what a 'marine casualty' is and provide tangible examples that paddlers are familiar with.
  - Provide information on how to report a marine casualty to the MCIB.
  - Ensure that all paddlers know that in the event of a paddlesport incident they are classified as a 'marine casualty' regardless of their paddling environment (i.e. river, lake, or sea) and have obligations under the Merchant Shipping legislation
5. Develop a national paddlesport accident and near-miss reporting system/database.
6. Along with physical injury and equipment damage, consider including environmental damage in future definitions of accidents and near-misses.
7. Continue discussions with Sport Ireland, Irish Surfing (and Irish Sailing) as to how to address recreational paddleboard training.

## 4. Survey Findings

This section breaks down the data collected in the paddler survey (247 responses) and club survey (14 responses) into a number of sections. It begins with an outline of who filled in the paddler surveys as background information for the following sections that look at various aspects of safety across paddlesports. The latter part of this chapter presents findings from the club survey.

### Paddler Demographics

In total, 256 paddlers responded to the paddler survey. Of these, 9 were unusable, and so the final total of useable survey responses came to 247<sup>16</sup>. The data presented here gives an overview of the 247 paddlers that completed the paddler survey and the 14 clubs that completed the club safety systems audit survey. This background information provides context for the data as it shows the types of paddlers and clubs that informed the findings.

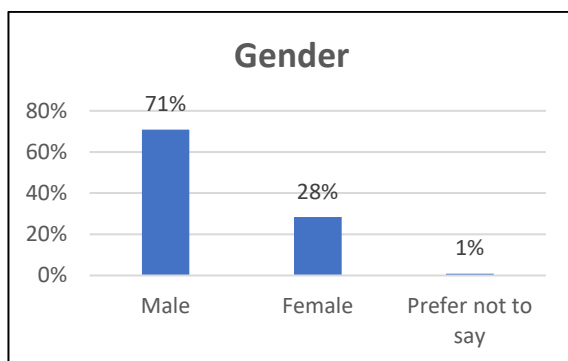


Figure 2 Gender of Respondents

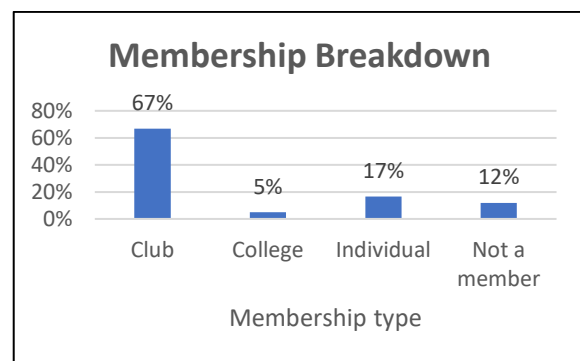


Figure 3: Membership Breakdown

Table 9: Gender breakdown - paddler survey

|                   | Survey | Canoeing Ireland (2022) |
|-------------------|--------|-------------------------|
| Male              | 71%    | 62%                     |
| Female            | 28%    | 38%                     |
| Prefer not to say | 1%     | -                       |

<sup>16</sup> Some of the stats included have less than 247 responses, as some respondents did not answer every question, or some questions did not apply to them.

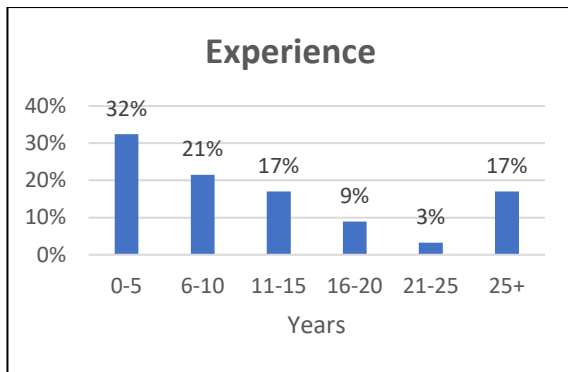


Figure 4: Years of Experience

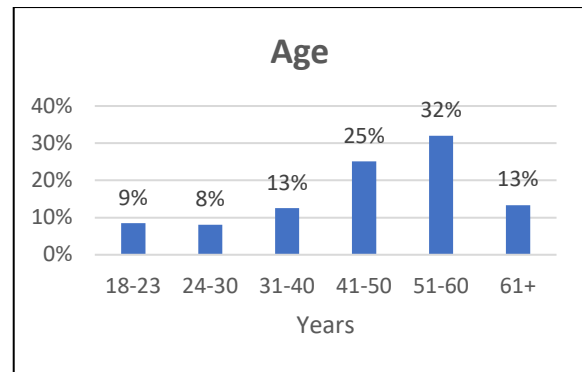


Figure 5: Age of Respondents

While substantially more males responded to the survey, this gender breakdown is broadly in line with current Canoeing Ireland membership demographics (Canoeing Ireland, 2022b) - see table 9, above, for a comparison. Canoeing Ireland club members formed the majority of respondents (72%), and 12% of respondents were individual members. In terms of the age and experience levels of respondents, over half (53%) of the respondents have less than 10 years of experience, and 54% are over 50 years old. Figure 6, below, shows the age of survey respondents compared with their experience levels. There is a clear trend here (in the grey columns) of people taking up paddlesports at an older age. This trend may be beyond the scope of this report to investigate further, but it is worthy of note, as it could be useful in attracting and retaining members to Canoeing Ireland in future strategic plans. A further breakdown of the respondent's demographics can be seen in table 10, below.

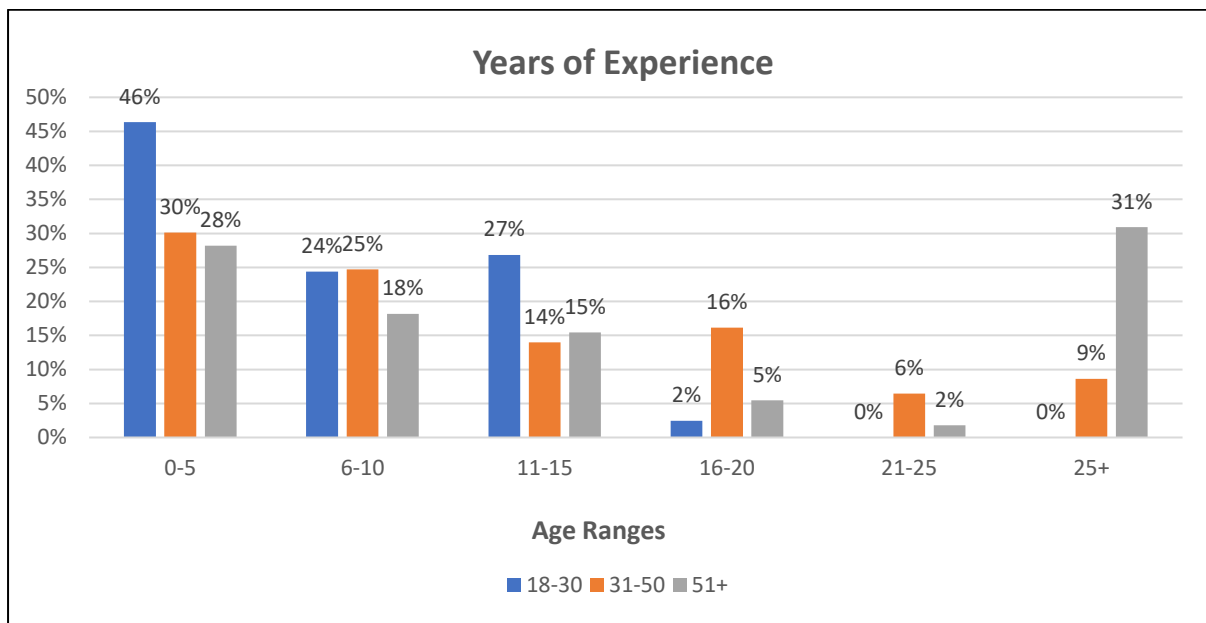


Figure 6: The age range and experience levels of survey respondents

*Table 10: A summary overview of the paddler survey respondents' demographics.*

| Paddling Demographic            | Responses | CI Membership | Gender % (F/M/Other) | Median Age | Avg. Years' Experience |
|---------------------------------|-----------|---------------|----------------------|------------|------------------------|
| River Kayakers                  | 169       | 95.3%         | 27.4 / 72 / 0.6      | 44.9       | 10.75                  |
| Sea Kayakers                    | 44        | 63.6%         | 29.5 / 68.2 / 2.3    | 52.7       | 13.4                   |
| Recreational Flatwater Paddlers | 12        | 75%           | 58.3 / 41.7 / 0      | 49.5       | 6.4                    |
| Competitive Paddlers            | 11        | 100%          | 18.2 / 82 / 0        | 32.7       | 12.8                   |
| Open Boaters                    | 9         | 100%          | 22.2 / 77.8 / 0      | 51.7       | 14.1                   |
| Stand-up paddle boarders        | 2         | 0%            | 0 / 100 / 0          | 40         | 10                     |
| Anglers                         | 1         | 0%            | 0 / 100 / 0          | 45         | 7                      |

## Recommendations

It is recommended that Canoeing Ireland:

1. Continue to explore means of attracting more younger people to take up paddlesports.
2. Explore why there appears to be an older entry age into recreational paddlesports.

## Overall Safety

This section presents an overview of Irish paddler's responses to the paddler survey. Overall, there appears to be a good awareness of safety. Some areas are identified where there is scope for improvement. These points are covered in the following sections. This section is the only one that had descriptive statistics that were not significant, though the significance test and some basic statistics do offer some interesting points, nonetheless.

Figure 7, below, shows the overall safety scores for the survey respondents (see chapter 2 for an explanation of how this score was calculated). As can clearly be seen from the chart, paddlers in general are aware of safety practices, with 86% of survey respondents in the high or very high categories. 14%, are not in the high categories, with only 3% (9 paddlers) in the lowest grouping. While this is promising from a safety point of view, only one third (32%) are in the highest category, so there is still space to develop paddlesport safety awareness to an even higher standard.

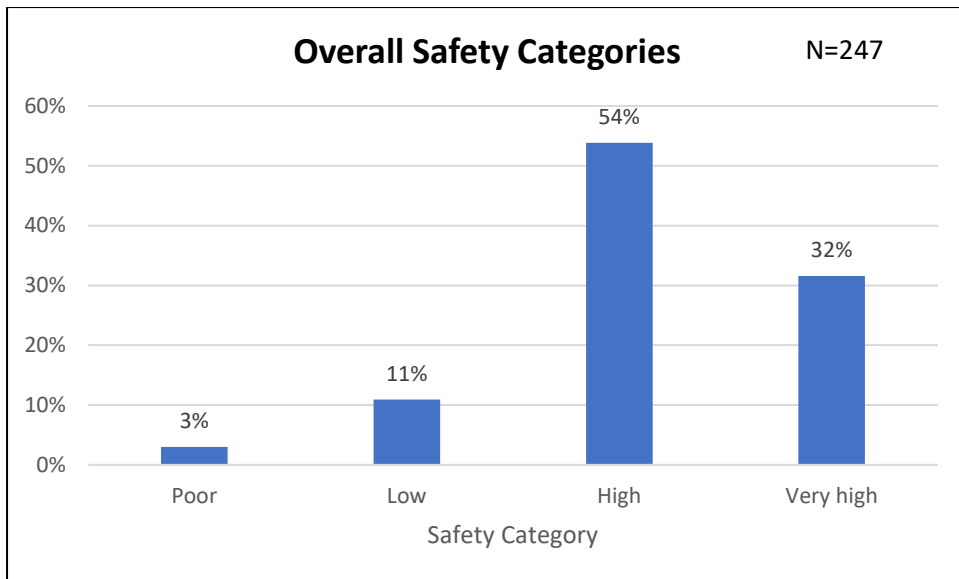


Figure 7: Overall safety categories

Though not a significant finding (Chi-square: 2.234; p-value: 0.327), gender does not appear to have a bearing on overall safety score (figures are proportional across all categories).

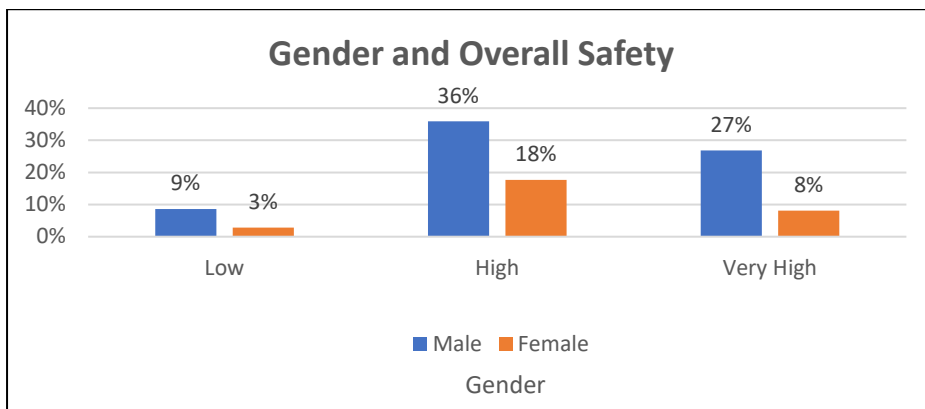


Figure 8: Overall safety and gender

Comparing overall safety with the experience levels of respondents, there is at least one paddler from the poor overall safety category in every age group, yet each experience level has a proportionally high amount of people in the high and very high overall safety categories (table 11). The higher levels of safety are very consistent across experience levels.

Table 11: Overall safety and experience levels of respondents.

|                                 | 0-5 years | 6-10 years | 11-15 years | 16-20 years | 21-25 years | 25+ years |
|---------------------------------|-----------|------------|-------------|-------------|-------------|-----------|
| <b>High/Very Overall Safety</b> | 95%       | 79%        | 83%         | 82%         | 88%         | 79%       |

Although the numbers involved were too low to be significant, the levels of overall safety of the nine Instructor Developers<sup>17</sup> (IDs – those that train instructors) are worth noting. All of the IDs are in the high overall safety category. Seeing as these paddlers have a direct impact on the training of instructors, it is worth noting here that none of them were in the very high overall safety category.

Finally, the test to compare overall safety with applied safety was not significant (below 0.05 - Chi square: 5.572; p-value: 0.062), though the numbers are still informative. First of all, no respondent was in the low applied safety category, which implies that safety in practice is generally high. Just over a quarter of respondents were in the *Very High* categories in both overall safety and applied safety, with half of respondents in the *High* overall safety and very high applied safety. The 11% of respondents with a *Low* overall safety awareness had a *Very High* applied safety score. Explaining this apparent contradiction may require further research.

Table 12: Overall safety and applied safety of respondents.

|                |           | Overall Safety |      |           |
|----------------|-----------|----------------|------|-----------|
|                |           | Low            | High | Very High |
| Applied Safety | Very High | 11%            | 50%  | 26%       |
|                | High      | 0%             | 6%   | 6%        |

## Recommendations

It is recommended that Canoeing Ireland:

1. Increase the amount of safety-related information on their website and in communications with members (and the public).
2. Develop a workshop for Instructor Developers to work on embedding more safety awareness into instructor and skills training courses.
3. Add content on the Code of Practice to skills, instructor, and coach training courses.
4. Establish clear guidelines for clubs and individual members for reporting accidents and near-misses to the MCIB.

<sup>17</sup> Five other respondents claimed to hold an ID award, though they did not hold the necessary qualifications to do so, so these five were omitted from this dataset.



- Collating accident and near-miss data and present it annually to its members in an effort to inform current practice and identify emerging trends.

### Accidents and Near-misses

Respondents were asked to define what an accident and a near-miss are, as well as provide examples of both. Figures 9-12, below, show how respondents answered these four questions. In each case, a clear majority were able to provide definitions and examples that were accurate (see definitions section above). That approximately 10% of respondents have never experienced an accident or a near-miss which highlights the high levels of safety that have already been shown in this report<sup>18</sup>.

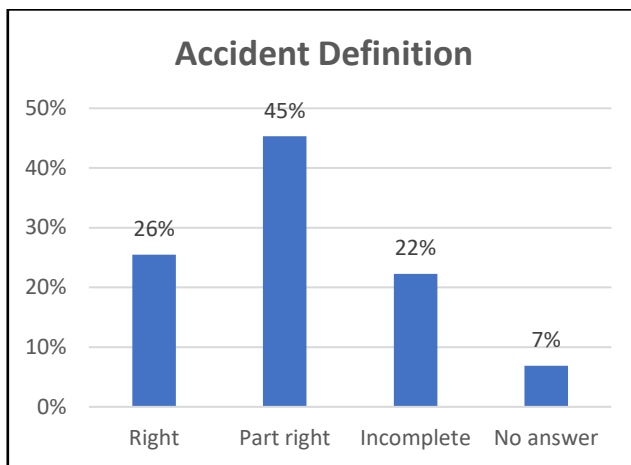


Figure 9: Accident definition

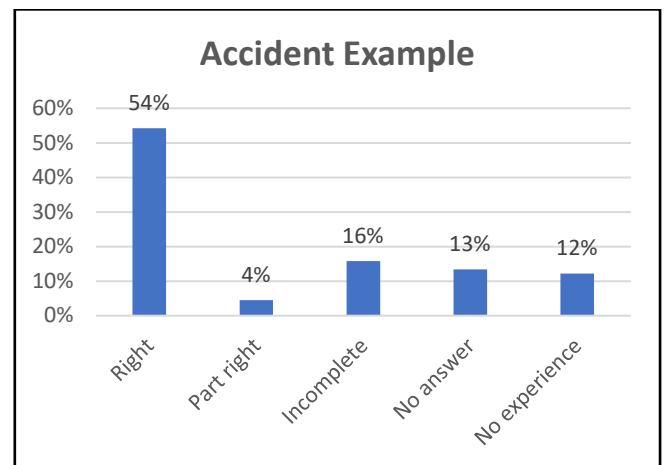


Figure 10: Accident example

The accurate (right and part-right) responses and the incomplete and no answers for these four questions (17-20) were combined to allow for significance testing. Comparing the definitions of accidents and near-misses (chi square: 25.777; p-value: <0.001), 63% of respondents provided a definition of an accident and a near-miss that were accurate. 26% got one definition right and the other wrong. 11% did not provide an accurate definition for either term. In terms of the examples (chi square: 30.015; p-value: <0.001), 52% of respondents provided an example of an accident and a near-miss that were accurate. 28% provided one accurate example. 20% did not provide an accurate example of either.

<sup>18</sup> While there were a number of less-experienced paddlers in some of these groups, there was a mix of experience levels across the groups that have experienced no accidents or near-misses.

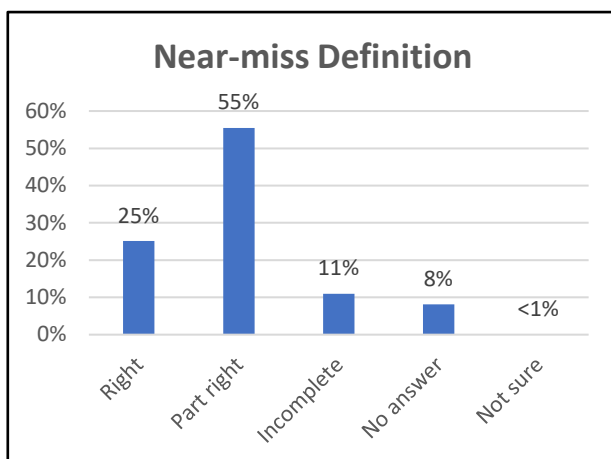


Figure 11: Near-miss definition

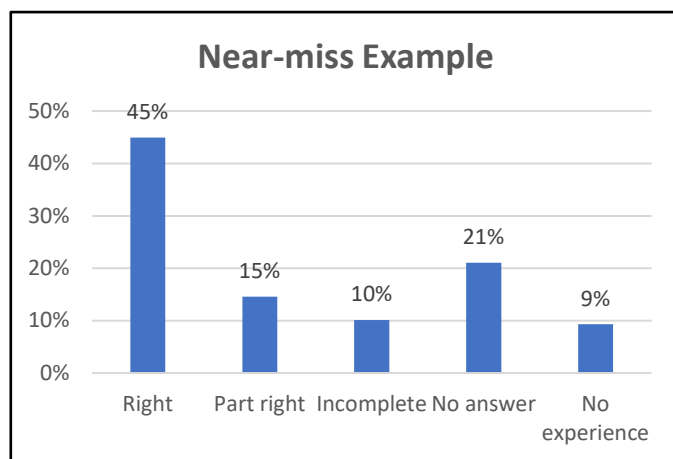


Figure 12: Near-miss example

All of this shows that the majority of paddlers understand what accidents and near-misses are, though there is still a significant proportion of Irish paddlers that are unsure or inaccurate in their understanding of accidents and near-misses. Having a deeper understanding and appreciation of the differences between accidents and near-misses could enhance the safety awareness of all paddlers as they would be better able to figure out the seriousness of a given situation and how they should respond more accurately.

In terms of the types of accidents provided as examples, there were a number of categories. Figure 13 presents a summary of the accident examples, while table 13 gives more detail. Physical injury is the main accident example type at 40%, with the *Other* category consisting of a range of further types. 42% of responses comprised of no answers, examples that were not accidents, or non-paddling related accidents.

Overall, there is a significant cohort of paddlers that could not provide clear examples of accidents (29% for definition and example) as well as near-misses (19% for definition and 31% for example). Further evidence of this can be seen in how 12% of paddlers provided examples that were not accidents and 5% gave examples not related to paddlesports. Of those that have not encountered a near-miss, two defined a near miss as including or being close to a fatality and a further four respondents defined a near-miss as an accident (there was actual physical injury or equipment damage). Other respondents defined a near-miss as something that can be avoided by skill, or as involving an element of luck. Many of these paddlers have more than 5 years of experience and have completed skills certification.

Table 13: Accident categories

|   | Accident Categories  | %   |
|---|----------------------|-----|
| 1 | Physical injury      | 18% |
| 1 | Shoulder injury      | 14% |
| 2 | No answer            | 13% |
| 2 | None                 | 12% |
| 3 | Not an accident      | 12% |
| 1 | Capsize with injury  | 8%  |
| 4 | Pin/strainer         | 6%  |
| 3 | Non-paddling         | 5%  |
| 4 | Trip/slip/fall       | 5%  |
| 4 | Equipment damage     | 3%  |
| 4 | Drowning/fatality    | 2%  |
| 4 | Poor trip management | 1%  |
| 4 | Collision            | 1%  |

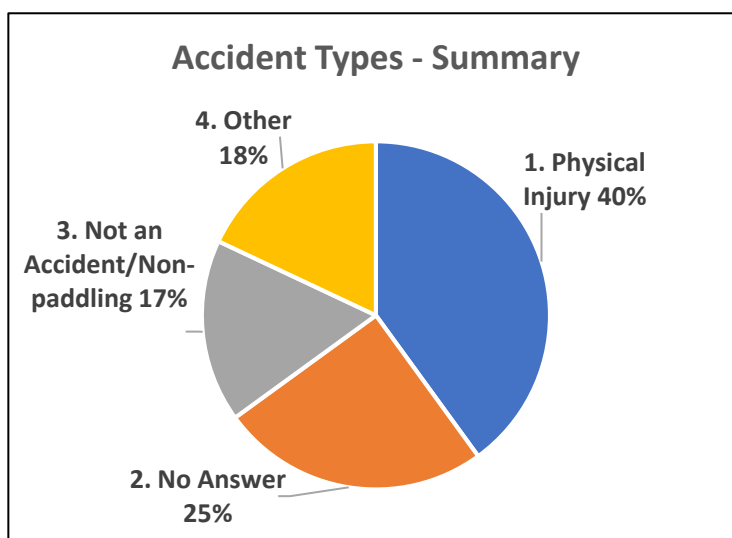


Figure 13: Accident types- summary

Analysis of near miss data can facilitate the development of best practice by identifying potential safety issues before they become more widespread and the adoption of new procedures and techniques that may help avoid future accidents. Looking at the club safety systems audit, it identified that 93% of clubs have some form of accident reporting system, while only 43% have a near-miss reporting system (another 43% said they do not, and 14% were unsure if they did). Looking to other watersport NGBs, [British Canoeing](#) supports and encourages members to report near-misses, and [British Rowing](#) both encourages and goes on to recognise the clubs that report the most incidents (pp. 39-40).

## Recommendations

It is recommended that Canoeing Ireland:

1. Develop and promote an accident and near-miss reporting database.
2. Promote awareness of accidents and near-misses and what the differences are through, for example, case studies, workshops/scenarios, and inclusion in skills, instructor, and coach training.

## Solo Paddling

The paddler survey contained two questions on solo paddling. One that asked whether paddlers have or do go solo paddling, and the second about whether they believe solo paddling to be safe. This section details the findings from these questions, and compares this data to the overall safety scores and instructor levels.

Overall, 61% of respondents have, or do, go solo paddling and 35% believe solo paddling to be safe. These are high percentages considering one of Canoeing Ireland's three golden rules is never paddle alone/less than three there should never be, and warrants further exploration.

There is a significant difference (Chi squared 7.739, p-value 0.005) in terms of gender and solo paddling, with 72% of males and only 52% of females going solo paddling.

In terms of overall safety (Chi squared 20.25, p-value <0.001), the majority (41%) of solo paddlers are in the high overall safety category, while the majority of non-solo paddlers (18%) are in the very high overall safety category (Figure 14). 35.5% of respondents believe that solo paddling was safe (Chi squared 65.804, p-value <0.001) and 10% of respondents were unsure if solo paddling was safe (Figure 15). Another point of note in comparing overall safety and solo paddling, is the high proportion (85%) of paddlers in the low overall safety category that go solo paddling.

What all those numbers mean is that, even though it breaks one of Canoeing Ireland's golden rules, the majority of paddlers go out on the water alone. On the face of it this may seem reckless, and it comes with obvious risks, however, the data here indicates that paddlers are, for the most part, still very aware of safety whether they go solo paddling or not. Indeed, when asked what precautions they take when going solo paddling, a lot of respondents noted they check the conditions, always have a means of communication, and limit the location to someplace well-known to them. The following quotes provides an example of the planning for solo paddling:

*"I increase my discipline around start time/location and inform my partner of the logistics. I also only paddle in an area I am familiar with and never in conditions which I would consider high risk" (respondent 15).*

And,

*“I carry a VHF, PLB, phone in case, and flares. And call the coastguard to tell them my plans. Carefully assess weather conditions before heading out and turn back if necessary” (respondent 23).*

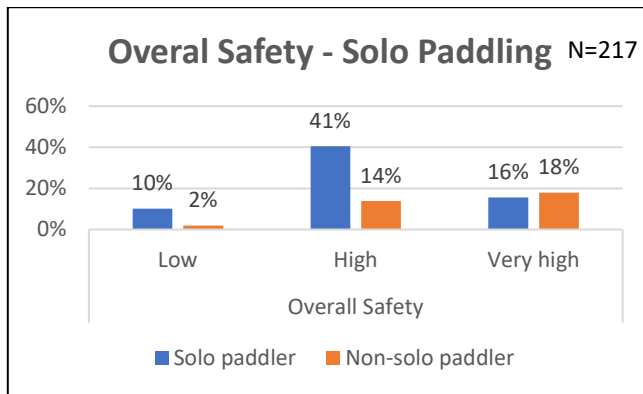


Figure 14: Overall safety and solo paddling

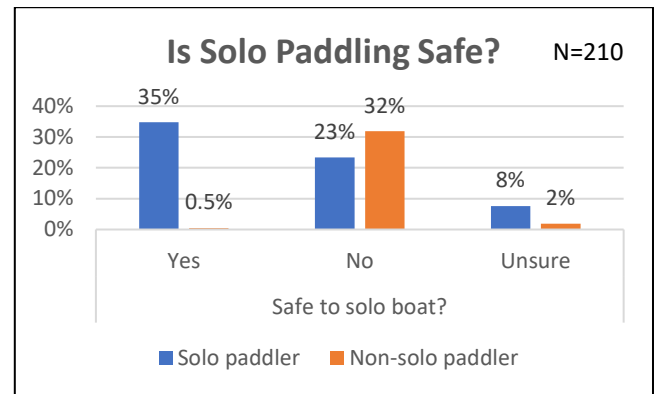


Figure 15: Is solo paddling safe?

In terms of applied safety, 55% of paddlers are in the *Very High* applied safety category and go solo paddling, as opposed to 24% that do not solo paddle (Chi squared 8.313, p-value 0.016). The proportion of solo paddlers in the *Very High* applied safety category is much higher than the non-solo paddlers. 9% (21 respondents) provided no answer.

Table 14: Applied safety and solo paddling

|                |           | Go solo boat |     |           |
|----------------|-----------|--------------|-----|-----------|
|                |           | Yes          | No  | No answer |
| Applied Safety | Very High | 55%          | 24% | 8%        |
|                | High      | 5%           | 7%  | 1%        |

The following quotes from respondents highlight a nuanced application of safety practices. It appears that the safety rules may be used more as guidelines than absolutes:

*“I’ve done it [solo paddling] and taken no extra precaution. I don’t have much faith in a group I’m leading to rescue me in conditions where they are at their limit. So, leading on class IV/V and soloing share that if you mess up you’re on your own. I’ve also just left where I was going with someone and told them to raise the alarm if I*

*don't return. Not much raising the alarm does if your drowning in whitewater other than give them a place to search for a body.*

*I carry a phone in a waterproof case, a VHF, flares, and a plan sea kayaking”*  
(respondent 30).

*“Look at conditions and take a mobile phone and whatever other aids necessary.  
Finally make an adult decision”* (respondent 65).

And,

*“Yes, always have my phone with me and let people know where I'm going. But it's only flat water”* (respondent 25).

As experience increases, the proportion of solo paddlers in each category steadily increases (Chi squared 36.862, p-value <0.001). Table 15 shows that 43% of the least experienced group go, or have gone, solo paddling while 92% of the most experienced group go solo paddling. There is a noticeable increase in solo paddling from the 11-15 years of experience group onwards.

*Table 15: Comparison of proportion of solo paddlers with experience levels*

|            | Years of experience | Proportion of solo paddlers |
|------------|---------------------|-----------------------------|
| Experience | 0-5                 | 43%                         |
|            | 6-10                | 56%                         |
|            | 11-15               | 86%                         |
|            | 16-20               | 71%                         |
|            | 21-25               | 83%                         |
|            | 25+                 | 92%                         |

Comparing the levels of qualification (coach and instructor awards) to solo paddling (Table 16), the majority of each category of paddler go, or have gone, solo paddling (Chi squared 20.037, p-value <0.001). Similar to the experience levels, the percentage of solo paddlers increases with each level of qualification that paddlers achieve, to the point where all level 4 and 5 instructors, and 96% of level 3 instructors, that responded to the survey go solo paddling.

*Table 16: Comparison of instructor levels and solo paddling*

| N=226                    | Go solo paddling |     |
|--------------------------|------------------|-----|
|                          | Yes              | No  |
| No qualification         | 58%              | 42% |
| Flatwater (level 1 or 2) | 68%              | 32% |
| Intermediate (level 3)   | 96%              | 4%  |
| Advanced (level 4 or 5)  | 100%             | 0%  |

In summary, the data in this section shows an incongruency between the amount of self-reported solo paddling and Canoeing Ireland’s golden rule of never paddle alone. The Code of Practice also recommends that paddlers do not paddle alone (Department of Transport, Tourism, and Sport, 2017, pp.81, 84, 86, 87). While a majority of paddlers do solo paddle, the evidence here is that they are still relatively safe in terms of safety awareness and applied safety.

The marked increase in solo paddling from 10 years of experience onwards is also notable. This could be as a result of paddlers applied safety awareness increasing to a point where they can rationalise solo paddling as a safe enough practice, regardless of the golden rule against such paddling. This may be similar for qualified coaches and instructors. Perhaps paddlers are accepting of risk enough to go solo paddling. Such a culture within Irish paddlesports may also be in line with the fact that over half of respondents are in the high, and not very high overall safety category – some of them may choose to be “less safe”. This is worthy of further investigation.

## Recommendations

It is recommended that Canoeing Ireland:

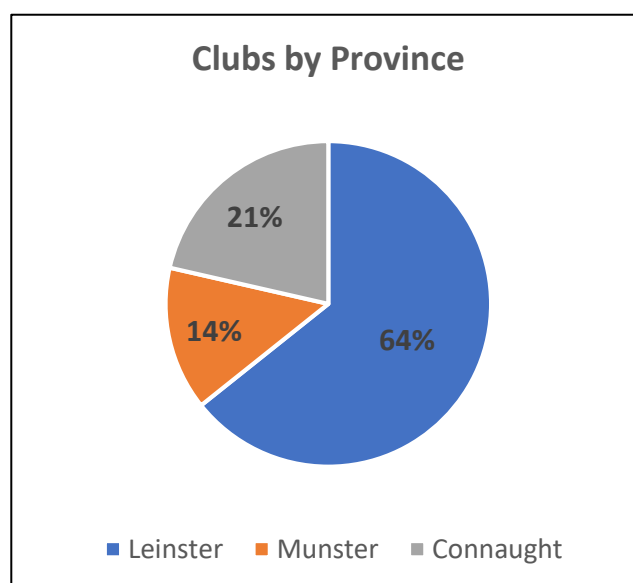
1. Develop a more nuanced policy with regards to solo paddling.
2. Initiate a consultation with solo-paddlers to better understand their perceptions of risk, safety culture, and reasons why they solo paddle.

## Club Safety

In terms of the club safety systems audit, the majority of clubs (64%, or 8 clubs) responding to the survey were located in Leinster. Overall, the average membership was 131 members, with the largest club membership at 700, and the smallest at 20. Some of the clubs involved were newly formed, and the average age of a club was 28 years. Finally, as can be seen in table 11, below, every club bar one offers a wide range of recreational paddlesports disciplines, while almost 80% offer at least one competitive discipline.

*Table 17: Club disciplines*

| Club | Disciplines (overall) <sup>19</sup> | Competitive disciplines |
|------|-------------------------------------|-------------------------|
| 1    | 4                                   | -                       |
| 2    | 5                                   | 1                       |
| 3    | 1                                   | 1                       |
| 4    | 4                                   | 2                       |
| 5    | 7                                   | 3                       |
| 6    | 12                                  | 6                       |
| 7    | 2                                   | -                       |
| 8    | 5                                   | 2                       |
| 9    | 7                                   | 4                       |
| 10   | 10                                  | 5                       |
| 11   | 3                                   | 1                       |
| 12   | 2                                   | -                       |
| 13   | 7                                   | 5                       |
| 14   | -                                   | 1                       |



*Figure 16: Clubs replies by province*

All of the club officers who replied to the club safety systems audit, on behalf of their club committee, appeared to place paddler safety as a high priority issue within their clubs. However, when the documentation was reviewed the paper trail did not appear to support this assertion. We suspect that paddler safety is rigorous in its application on trips and courses within clubs, yet the evidence from this survey would suggest that the supporting documentation that underpins the strong safety culture may be lacking if audited, especially in the case of an MCIB investigation. It is accepted that all committees are volunteers and

<sup>19</sup> Many clubs offer river kayaking, sea kayaking, recreational flatwater paddling, paddleboard, none of which we have classified as competitive disciplines.



that Canoeing Ireland may need to provide more support and guidance in the form of structured training and safety document templates to aid in addressing this issue.

One club officer noted that their safety documentation had not been revised for a considerable period of time and, as per the recommendations of a number of MCIB reports, audits and compliance checks should also be established as a normal part of club safety culture.

At no stage did we get the sense that there was any level of neglect or an absence of safety systems, but rather a deficit of knowledge or guidance in assisting club officers to be aware of their responsibilities and duties. Canoeing Ireland has a major role to play here in assisting constituent clubs with their governance in terms of safety and risk leadership.

From data collated within this study from surveys and from membership data obtained from Canoeing Ireland, the organisation is primarily a club-centred organisation. However, there may be an issue around the relevancy of the Canoeing Ireland award scheme to its members that needs to be reviewed. It is worth mentioning here that one respondent in the paddler survey stated that the award scheme did not work for them or was irrelevant. Some clubs appear to have their own system for approving or qualifying members to lead and supervise club activities that is not sanctioned by Canoeing Ireland. Qualified personnel appear to be an issue for clubs with one club having a ratio of 300:1 of members to Canoeing Ireland qualified instructors.

Likewise, it was noted that another club had its own leader training scheme while another club appeared to have another system to facilitate non-Canoeing Ireland qualified personnel in leading groups. Canoeing Ireland may have to explore the issue of clubs creating their own award schemes/leader approval processes in terms of the relevancy of, and disengagement with, the NGB's training scheme(s). Specifically, it may be worth investigating:

- Why clubs feel the need to develop their own processes, and could these be incorporated/adapted into the existing award scheme(s).
- Issues concerning access to training courses or personnel who can provide training, the cost and availability of training, and the timeframe from training to qualification.

It would be worth investigating when such initiatives began in clubs to explore what changes and developments within the award scheme have impacted on the level of club engagement with existing awards. For example, did the addition of rolling into the level 3 skills awards for kayaking create a perceived obstacle or barrier to more club paddlers attending instructor training?

Within the club safety systems audit there were a number of issues arising:

- None of the clubs presented a critical incident management plan.
- None of the clubs had been safety audited or had a regular documented systematic approach to reviewing safety issues.
- While it was clear that some clubs reviewed their safety systems there was no obvious audit trail, such as dated documents or review check boxes, to record that such work had been undertaken.
- Many clubs noted that they had adapted or obtained their safety documents elsewhere which would account for the lack of specificity and other potential gaps within some of their documentation.

One club had a policy for solo paddlers. Such a policy may be necessary to facilitate certain disciplines, however Canoeing Ireland need to review its existing policy, otherwise clubs which are insured through the NGB will be in direct violation of the NGB's guidelines and policy. This could present a potential risk, as some clubs may not have valid insurance cover as they are operating contrary to Canoeing Ireland's safety guidelines.

## Recommendations

It is recommended that Canoeing Ireland:

1. Develop club safety documentation, such as a set of templates for safety statements, risk assessments, incident management plans, as well as a checklist for what should be included in same to support clubs.
2. Establish a safety systems audit process for clubs.

3. Review the locally developed training processes and leader approval and/or qualifying systems and identify if there is scope to include some of these processes in the new flatwater leader award.

## Climate Change

Climate change was not directly explored through the surveys, but as one aspect of a marine casualty is environmental damage, it is pertinent to consider the effects of climate change on safe paddlesports participation. UN Secretary General António Guterres pointed out that climate change is accelerating and to emphasise the sense of urgency noted that we are now in an “era of global boiling” (UN News, 2023, para 13) and this is going to have profound impacts upon our climate. From a paddlesports perspective this has the potential to impact dramatically on all paddlesports, through extremes of water (too much/little water) and wind (too strong - small craft/gale warnings) which will have implications for participation. For example, Figure 17 presents river level data for two Irish rivers over a 14-month period (November 2022 – September 2023). The graphs show a number of instances where the water levels exceeded the maximum levels on record for each river (Office of Public Works, n.d.)

Changes in climate are evident by a change in the nature (duration and intensity) of precipitation which has impacted upon river flows (some of this change may also be influenced by land use changes). This year (2023) saw some rivers runnable (even in flood stage) during the summer that would generally only have been runnable previously in winters months. For river paddling, this has meant that rather than rivers rising as the winter progressed and allowing for a progressive approach to refining skills, some rivers are only able to be paddled for short time periods. Paddling such spate rivers requires paddlers to be able to make very rapid decisions regarding river conditions and group abilities, as well as call for refined paddling skills without a progressive refinement period.

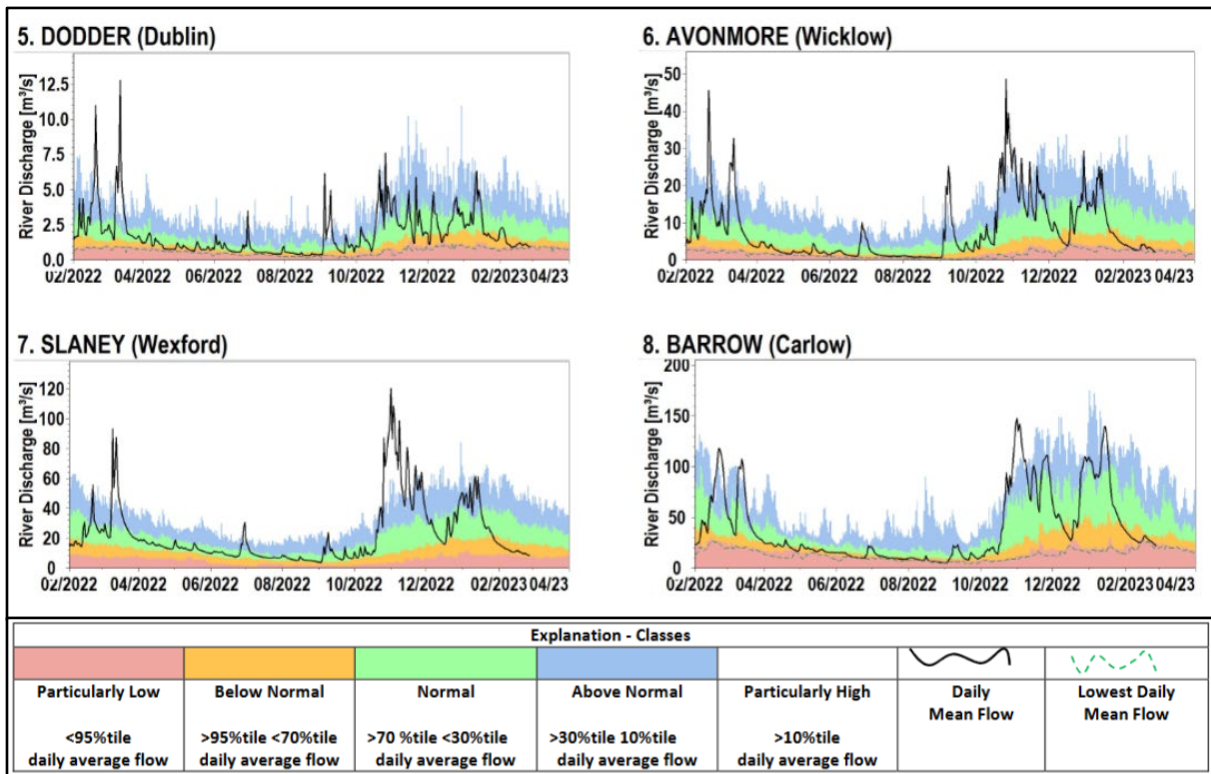


Figure 17: Sample river level data February 2022-2023 (EPA, 2023, p. 7)

Likewise, on the sea, prolonged periods with small craft warnings, usually herald periods of inactivity, but technological changes around down-wind boats and skis have altered operating parameters for some disciplines. This means that paddling can continue in such conditions subject to specific additional guidelines, which may challenge existing operating norms. Clubs and individual paddlers may welcome some more training and guidance in these issues.

## Recommendations

It is recommended that Canoeing Ireland:

1. Explore the possible safety implications of climate change on paddler safety, i.e. spate river paddling, or downwind ski racing/sea kayaking journeys.
2. Explore any revisions required in the award scheme to address safety around running spate rivers.

## 5. Findings Summary and Future Research

When an incident occurs, there is usually a succession of factors that intersect and contribute to the event - incidents unfold. It is the intervening actions or inactions that determine the severity of such incidents. Investigations can usually trace back and identify a number of points of influence in any incident. Consequently, within this review a multiplicity of topics were analysed that could potentially impact upon safety practice, any one of which could be that point of influence within an incident. Future incidents may be greatly reduced through a heightened awareness in the paddlesports community of factors contributing to safety concerns. This final section of the report outlines the recommendations from previous chapters which can potentially be points of influence in unfolding incidents. These have been grouped into short, medium, and long-term recommendations.

### Short-term Recommendations (within 18 months)

1. Canoeing Ireland needs to promote the Code of Practice for the Safe Operation of Recreational Craft to alert paddlers to their responsibilities, in line with MCIB recommendations. This could include:
  - Promote consistent safety guidelines between Canoeing Ireland and the Code of Practice to alert paddlers (clubs and individual paddlers) to their responsibilities, in line with MCIB recommendations.
  - Develop a summary of all relevant safety requirements (legal and NGB specific) and make this available on the Canoeing Ireland website.
  - Ensure all instructor developers (IDs) reference the code of practice and are able to direct trainee instructors to where to download or obtain a copy of the code of practice.
2. Canoeing Ireland should review the existing 'golden rules' and adapt/revise them if required to be more relevant to its membership and in line with relevant legislation and regulation. At a minimum the golden rules should ensure all its members:

- Wear an appropriate personal floatation device.
  - Can swim or are water confident.
  - Notify a shore agent/responsible person of their departure and estimated time of arrival (ETA).
  - In the event of an incident, they need to know of the requirement to notify Canoeing Ireland and/or the MCIB.
  - Carry at least one means of communicating in the event of an incident.
  - Advocate for all trips to have a plan in advance and where necessary participants have an awareness of the rules of the road/collision regulations for various navigations (such as the Shannon, Corrib, Barrow, canals, etc).
3. Canoeing Ireland should review its solo paddling policy, considering the finding that over half of the respondents to the paddler survey self-reported that they have, or do, go solo paddling and that at least some clubs support solo paddling.
  4. Develop draft sample safety documents (i.e., checklist of requirements, risk assessments, safety statements, critical incident plans) that can be circulated to clubs for adaptation. These documents need to reflect best practice regarding regularly reviewing such documents and other safety practices.
  5. Continue discussions with Sport Ireland, Irish Surfing (and Irish Sailing) as to how to address recreational paddleboard training. Note that this broader discussion and a potential shared strategy may need to continue in spite of any future ruling from either the International Canoe Federation/International Surfing Association as to where responsibility for paddleboarding should reside.

#### Medium-term (18 months to 36 months)

1. Audit and revise where appropriate the Canoeing Ireland award schemes to ensure that they are compliant with regulations and legislation pertinent to recreational

paddling and consider including Code of Practice information in training. As part of this CI will need to:

- Promote and ensure that the paddling community are aware of what a *marine casualty* is and provide tangible examples that paddlers can relate to.
  - Establish clear guidelines for clubs and individual members for reporting accidents and near-misses to the MCIB.
  - Along with physical injury and equipment damage, consider including environmental damage in future definitions of accidents and near-misses.
  - Develop a workshop for instructor developers to work on embedding more safety awareness into instructor and skills training courses.
  - Promote awareness of accidents and a near-misses and what the differences are through, for example, case studies, workshops/scenarios, and inclusion in skills, instructor, and coach training.
2. Develop support mechanisms for clubs, including training days (regional workshops) for safety officers and an audit system for safety documentation.
  3. Continue to explore means of attracting more younger people to take up paddlesports.

### Long-term (36+ months)

1. Developing a national accident and near-miss reporting system for paddlesports.
  - Should it be pursued this will require Canoeing Ireland to facilitate a system to enable near miss and accident data to be submitted and ensure it is collated annually, e.g. see Table 8. It is strongly recommended that Canoeing Ireland takes a lead in developing this, before one is imposed (see recommendations in MCIB reports 203 & 304), as it will facilitate and inform prevention mechanisms. The American Canoe Association, which had a US Coastguard reporting system imposed, readily acknowledges that the categories currently used by the USCG do not suit paddlesports (Walbridge & Tinsley, 1996).

- Collating accident and near miss data and presenting it annually to its members in an effort to inform current practice and identify emerging trends.
2. Establishing a safety systems audit process for clubs.
  3. Review the locally developed training processes and leader approval and/or qualifying systems and identify if there is scope to develop/introduce a new award for clubs.
  3. Explore the possible safety implications of climate change on paddler safety, i.e. spate river paddling, or downwind ski racing/sea kayaking journeys.
  4. Have agreed collaboratively with Sport Ireland and the other NGBs as to where paddleboarding resides and adhere to that agreement or collectively agree a shared strategy to training.

### Further Research Areas

This section compiles some possible future research studies that could provide further insight into safety culture in Irish paddlesports.

1. As the data collected was self-reported, future research could include field interviews and observations, as well as more detailed audits of safety documentation from clubs. This would yield a richer data set.
2. Further research into existing club practices and a review of the locally developed training systems within clubs to identify if there is scope to develop/introduce a new award for clubs or revise/adapt existing awards to be more relevant to clubs.
3. A more detailed systematic analysis of safety documentation may prove fruitful in determining where clubs do well, and where efforts could be focused for improvement.
4. Interviews with paddlers, and observations of practice on and off the water could offer more specific data on safety culture beyond self-reported surveys. Such research could further confirm or refine the findings of this report.



5. Focused research into potential differences between paddlesports disciplines (competitive, recreational, sea, rivers, lakes, for example) may provide useful data to develop more relevant safety guidelines for specific paddlesport disciplines.
6. A deeper exploration of the reasons for and rationalisation of solo paddling could inform a more nuanced policy or guidelines on going solo paddling in the future.
7. There is an opportunity to collaborate with Sport Ireland and other NGBs to develop a collective paddleboard training initiative. This will be crucial due to the diversity that is emerging within paddleboarding as expertise will be across multiple sports.
8. In line with a previous MCIB recommendation, and the system operated by the Academy of Surf Instructors (ASI), there is potential to research how to implement a safety/QA system for providers (MCIB/304 and MCIB, 2022). Incentives around insurance such as those operated by ASI and Mountain Training could be explored as part of such a research undertaking.

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## 7. Appendices

### Appendix 1: National Legislation Pertinent to Paddlesports

This appendix lists a number of pieces of current legislation that have sections that are pertinent to paddlesports in Ireland. These include:

- Merchant Shipping (Investigation of Marine Casualties) (Amendment) Act 2022 No 8 of 2022.
- Maritime Safety Act 2005, No 11 of 2005 – rights of the Minister for Transport to issue Codes of Practice for compliance.
- Merchant Shipping (Investigation of Marine Casualties) Act 2000 No 14 of 2000.
- Adventure Activities Standards Authority Act 2001 No 34 of 2001<sup>20</sup>.
- Harbours Acts 1996 to 2015 and Fishery Harbour Centres Act 1968, as amended
- Signals of Distress (Ships) Rules 2012 (S.I. No. 170 of 2012)
- (Ships and Water Craft on the Water) Order 2012 (S.I. No. 507 of 2012)
- Wireless Telegraphy (Ship Station Radio Licence) Regulations 2006 (S.I. No. 414 of 2006)
- Shannon act
- Occupiers' Liability Act, 1995. No 10 of 1995 (includes Duty of Care responsibilities)

On top of these pieces of legislation, two primary EU directives are of concern to paddlesports, namely:

- Pleasure Craft (Personal Flotation Devices and Operation) (Safety) Regulations 2005, as amended (S.I. No. 921 of 2005 as amended by S.I. No. 349 of 2012)
- Fundamental principles governing the investigation of accidents in the maritime transport sector EU Directive 2009/18/EC
- Recreational and personal watercraft Directive 2013/53/EU and European Union (Recreational Craft and Personal Watercraft) Regulations 2017 (S.I. No 65 of 2017) – standards for the construction and safety features for vessels)

Finally, in terms of relevant legislation and regulations, there are a number of international agreements, usually agreed through agencies such as the International Maritime Organisation (IMO), such as:

- SOLAS (Safety of Life at Sea) Chapter V – safety of navigation
- Merchant Shipping (Collision Regulations) Ships and Water Craft on the Water) Order 2012 (S.I. No 507 of 2012) – rules of the road and avoidance of collisions

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<sup>20</sup> Note that this piece of legislation, while passed by the Oireachtas, has yet to be enacted (contrary to what is published on [www.oireachtas.ie](http://www.oireachtas.ie)).

- MARPOL (International Convention for the Prevention of Pollution from Ships) Annex I and V  
– prevention of pollution from ships and consideration of environmental impact.

## Appendix 2: MCIB Report Recommendations Summary

This appendix summarises the recommendations from the 14 MCIB reports relevant to paddlesports. Items highlighted in yellow are counted as *Other* in table 8.

### Barrow 2004

- Undertake basic training – rescue and survival skills
- Understand limitations of equipment
- Carry out risk assessment
- Wear appropriate safety and protective equipment
- Danger notices at tidal weirs

### L. Derg 2006

- Notify a responsible person
- Understand limitations of equipment
- Undertake basic training – rescue and survival skills
- Carry out full risk assessment
- Comply with Code of Practice

### MCIB/156

- Notify a responsible person
- Understand limitations of equipment
- Undertake basic training – rescue and survival skills
- Carry out risk assessment
- Comply with Code of Practice

### MCIB/155

- Guidelines for less-run rivers
- Need for pre-planning and scouting
- Check conditions with locals
- Carry mobile phones

### MCIB/180

- Undertake basic training – rescue and survival skills
- Carry out risk assessment
- Danger signage
- Lifesaving equipment and exit ladders

- Prevent use of life-threatening weirs

#### **MCIB/188**

- Consider lifejackets instead of buoyancy aids for offshore kayaking
- Irish Canoe Union (now Canoeing Ireland) should further promote the practice of not going kayaking with less than 3 people in the group

#### **MCIB/203**

- Government safety standards
- Carry means of communication
- Shore contact with VHF
- Support boat for off-shore activities with inexperienced groups
- Weather forecast obtained and limits adhered to
- Ratios may need to change with particular groups, weather, etc.

#### **MCIB/241**

- PLBs to be carried on class 3 and above river trips
- Waterproof radios used to avoid line of sight issues
- Comply with Code of Practice

#### **MCIB/285**

- Comply with Code of Practice
- Undertake basic training
- Carry mobile phone or VHF
- Be able to swim
- Ensure use of appropriate equipment

#### **MCIB/275**

- Comply with Code of Practice

#### **MCIB/283**

- Comply with Code of Practice

#### **MCIB/304**

To the Minister for Transport:

- Comply with Code of Practice
- Consider a directory of commercial providers
- Consider a mandatory registration or licencing scheme for commercial providers
- Register commercial trips with coastguard

- Mandatory use of licensed VHF's in coastal commercial activities
- Include hazard identification and rescue facilities in Code of Practice

To Canoeing Ireland:

- Establish a mandatory audit of safety policies and practises in clubs and commercial providers
- Include training in Code of Practice etc. in training scheme
- Consider a safety compliance system within registration system

### **MCIB/296**

To ULKC:

- Review policies and procedures
- Adhere to Canoeing Ireland standards
- Suspend activities until policies and procedures approved by CI
- Comply with UL incident reporting procedures

To ULSU:

- Be able to provide ongoing specialist safety auditing
- Ensure clear responsibilities between ULSU and UL for improving ULKC safety standards

To UL:

- Consider safety regime of ULKC
- Ensure clear responsibilities between ULSU and UL for improving ULKC safety standards
- Ensure they receive incident reports form ULKC

To the Minister for Transport:

- Promote Code of Practice
- Work with ministers for sport and education in relation to third level club safety and resource Canoeing Ireland appropriately
- Engage with coastguard regarding winching capacity for future incidents

To Canoeing Ireland:

- Engage with ULKC regarding terms of affiliation and safety standards
- Establish a mandatory audit of safety policies and practises in clubs and commercial providers
- Include training in Code of Practice etc. in training scheme

### **MCIB/318**

To trip organiser:

- Comprehensive review safety regime and procedures

To Canoeing Ireland and Sport Ireland:

- Make a register of Canoeing Ireland qualified instructors publicly available
- Establish a safety audit scheme for affiliated clubs/providers



- Increase number of registered course providers and promote these providers to the public
- Promote the award scheme for all members
- Promote further formal risk assessment training in skills and instructor training

To Water Safety Ireland

- Further promote paddlesports safety
- Update published safety materials to avoid inconsistencies with Code of Practice

To Minister for Transport:

- Include hazard identification and rescue facilities in Code of Practice

To all paddlesports providers:

- Audit operating systems and safety procedures
- Comply with Code of Practice and Canoeing Ireland guidelines

Appendix 3: Details of sources for the paddler survey likert-style questions.

| Survey tool                          | Survey Section              | Questions |
|--------------------------------------|-----------------------------|-----------|
| Ostrom, Wilhelmsen and Kaplan (1993) | Safety awareness            | 1-3       |
|                                      | Teamwork                    | 5-8       |
|                                      | Pride and commitment        | 9-12      |
|                                      | Good practice               | 13-15     |
|                                      | Communication and reporting | 19-20     |
|                                      | Leadership and supervision  | 21-24     |
|                                      | Training                    | 25-28     |
|                                      | Safety effectiveness        | 29-31     |
| Carder and Ragan (2003)              | Safety awareness            | 4         |
| Weightman (2017)                     | Good practice               | 16        |
|                                      | Safety effectiveness        | 32        |
| The authors                          | Communication and reporting | 17, 18    |

## Appendix 4: Summary Breakdown of Applied Safety

Respondents' answers were individually graded by attributing a score (see *Original* columns under the accident and near-miss examples and the scenarios categories) to the responses. The scores were then combined within each category to produce a score for each category that ran from 1 to 3. This allowed for the separate categories to be combined further. The three final scores, from 1 to 3, for accident examples, near-miss examples, and scenarios were added together to give an individual score, which ranged from 3 to 9. This range (3-9) was subdivided into 3 categories which were categorised as *Very High* (3-5), *High* (6-7) and *Low* (8-9) respectively, in terms of applied safety.

| Accident/Near-miss Examples |   | Scenarios     |               |            | Applied Safety |
|-----------------------------|---|---------------|---------------|------------|----------------|
| Original (x2)               | Final (x2)                              | Original (x6) |               | Final (x1) | Final          |
| 1-right                     | 1=right (includes right and part right) | 1-right       | 6-all right   | 1=6-10     | 3-5=Very High  |
| 2-part right                | 2=wrong (includes wrong and no answer)  | 2-wrong       | 12-all wrong* | 2=11-14    | 6-7=High       |
| 3-wrong                     | 3=no experience                         | 3-unsure      | 18-all unsure | 3=15-18    | 8-9=Low        |
| 4-no answer                 |   |               |               |            |                |
| 5-no experience             |   |               |               |            |                |

\*or a combination of all 3 options

## Appendix 5: Descriptive Statistics

### Overall Safety & Gender

| Gender * Overall Safety Crosstabulation |        |                |      |           |       |
|---|--------|----------------|------|-----------|-------|
| Count                                   |        | Overall Safety |      |           | Total |
|   |        | Low            | High | Very high |       |
| Gender                                  | Male   | 18             | 75   | 56        | 149   |
|   | Female | 6              | 37   | 17        | 60    |
| Total                                   |        | 24             | 112  | 73        | 209   |

| Chi-Square Tests   |                    |    |                                   |
|--------------------|--------------------|----|-----------------------------------|
|                    | Value              | df | Asymptotic Significance (2-sided) |
| Pearson Chi-Square | 2.234 <sup>a</sup> | 2  | <b>.327</b>                       |

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 6.89.

### Overall Safety & Experience Levels

| Overall Safety * Experience Crosstabulation |           |            |      |       |       |       |     |       |
|---|-----------|------------|------|-------|-------|-------|-----|-------|
| Count                                       |           | Experience |      |       |       |       |     | Total |
|   |           | 0-5        | 6-10 | 11-15 | 16-20 | 21-25 | 25+ |       |
| Overall Safety                              | Poor      | 1          | 3    | 1     | 2     | 1     | 1   | 9     |
|   | Low       | 3          | 8    | 6     | 2     | 0     | 8   | 27    |
|   | High      | 43         | 23   | 24    | 11    | 4     | 28  | 133   |
|   | Very high | 33         | 19   | 11    | 7     | 3     | 5   | 78    |
| Total                                       |           | 80         | 53   | 42    | 22    | 8     | 42  | 247   |

### Overall Safety & Instructor Developers

| Overall Safety * ID award Crosstabulation |           |          |     |       |
|---|-----------|----------|-----|-------|
| Count                                     |           | ID award |     | Total |
|   |           | No       | Yes |       |
| Overall Safety                            | Low       | 25       | 2   | 27    |
|   | High      | 122      | 11  | 133   |
|   | Very high | 78       | 0   | 78    |
| Total                                     |           | 225      | 13  | 238   |

| Chi-Square Tests   |                    |    |                                   |
|--------------------|--------------------|----|-----------------------------------|
|                    | Value              | df | Asymptotic Significance (2-sided) |
| Pearson Chi-Square | 6.736 <sup>a</sup> | 2  | <b>.034</b>                       |

a. **2 cells (33.3%)** have expected count less than 5. The minimum expected count is 1.47.

## Overall Safety & Applied Safety

| Applied Safety * Overall Safety Crosstabulation |           |                |      |           |       |
|---|-----------|----------------|------|-----------|-------|
| Count   |           | Overall Safety |      |           | Total |
|   |           | Low            | High | Very high |       |
| Applied Safety                                  | Very High | 26             | 119  | 63        | 208   |
|   | High      | 1              | 14   | 15        | 30    |
| Total   |           | 27             | 133  | 78        | 238   |

| Chi-Square Tests   |                    |    |                                   |
|--------------------|--------------------|----|-----------------------------------|
|                    | Value              | df | Asymptotic Significance (2-sided) |
| Pearson Chi-Square | 5.572 <sup>a</sup> | 2  | .062                              |

a. 1 cells (16.7%) have expected count less than 5. The minimum expected count is 3.40.

## Accident & near-miss definitions

| Accident Definition Final * Near-miss Definition Final Crosstabulation |       |                            |       |       |
|--|-------|----------------------------|-------|-------|
| Count  |       | Near-miss Definition Final |       | Total |
|  |       | Right                      | Wrong |       |
| Accident Definition Final  | Right | 155                        | 19    | 174   |
|  | Wrong | 44                         | 28    | 72    |
| Total  |       | 199                        | 47    | 246   |

| Chi-Square Tests   |                     |    |                                   |
|--------------------|---------------------|----|-----------------------------------|
|                    | Value               | df | Asymptotic Significance (2-sided) |
| Pearson Chi-Square | 25.777 <sup>a</sup> | 1  | <.001                             |

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 13.76.

## Accident & near-miss examples

| Accident Example Updated * Near-miss Example Updated Crosstabulation |       |                           |       |       |
|--|-------|---------------------------|-------|-------|
| Count  |       | Near-miss Example Updated |       | Total |
|  |       | Right                     | Wrong |       |
| Accident Example Updated   | Right | 108                       | 29    | 137   |
|  | Wrong | 29                        | 42    | 71    |
| Total  |       | 137                       | 71    | 208   |

| Chi-Square Tests   |                     |    |                                   |
|--------------------|---------------------|----|-----------------------------------|
|                    | Value               | df | Asymptotic Significance (2-sided) |
| Pearson Chi-Square | 30.015 <sup>a</sup> | 1  | <.001                             |

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 24.24.

## Solo Paddling

### Comparison of gender and solo paddling

| Gender * Go solo paddle Crosstabulation |        |              |    |       |
|---|--------|--------------|----|-------|
| Count                                   |        |              |    |       |
|   |        | Go solo boat |    | Total |
|   |        | Yes          | No |       |
| Gender                                  | Male   | 107          | 42 | 149   |
|   | Female | 31           | 29 | 60    |
| Total                                   |        | 138          | 71 | 209   |

| Chi-Square Tests   |                    |    |                                   |
|--------------------|--------------------|----|-----------------------------------|
|                    | Value              | df | Asymptotic Significance (2-sided) |
| Pearson Chi-Square | 7.739 <sup>a</sup> | 1  | <b>.005</b>                       |

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 20.38.

### Comparison of overall safety to solo paddling

| Go solo paddle * Overall Safety Crosstabulation |     |                |      |           |       |
|---|-----|----------------|------|-----------|-------|
| Count   |     | Overall Safety |      |           | Total |
|   |     | Low            | High | Very high |       |
| Go solo paddle                                  | Yes | 22             | 88   | 34        | 144   |
|   | No  | 4              | 30   | 39        | 73    |
| Total   |     | 26             | 118  | 73        | 217   |

| Chi-Square Tests   |                     |    |                                   |
|--------------------|---------------------|----|-----------------------------------|
|                    | Value               | df | Asymptotic Significance (2-sided) |
| Pearson Chi-Square | 20.250 <sup>a</sup> | 2  | <b>&lt;.001</b>                   |

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 8.75.

### Comparison of solo paddling and safe to solo paddle

| Go solo paddle * Safe solo boat Crosstabulation |     |                |     |        |       |
|---|-----|----------------|-----|--------|-------|
| Count   |     | Safe solo boat |     |        | Total |
|   |     | Yes            | No  | Unsure |       |
| Go solo paddle                                  | Yes | 73             | 49  | 16     | 138   |
|   | No  | 1              | 67  | 4      | 72    |
| Total   |     | 74             | 116 | 20     | 210   |

| Chi-Square Tests   |                     |    |                                   |
|--|---------------------|----|-----------------------------------|
|  | Value               | df | Asymptotic Significance (2-sided) |
| Pearson Chi-Square   | 65.804 <sup>a</sup> | 2  | <b>&lt;.001</b>                   |
| a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 6.86. |                     |    |                                   |

### Comparison of applied safety to solo paddling

| Applied Safety * Go solo boat Crosstabulation |           |              |    |           |       |
|---|-----------|--------------|----|-----------|-------|
| Count   |           | Go solo boat |    |           | Total |
|   |           | Yes          | No | No answer |       |
| Applied Safety                                | Very High | 132          | 57 | 19        | 208   |
|   | High      | 12           | 16 | 2         | 30    |
| Total   |           | 144          | 73 | 21        | 238   |

| Chi-Square Tests  |                    |    |                                   |
|---|--------------------|----|-----------------------------------|
|   | Value              | df | Asymptotic Significance (2-sided) |
| Pearson Chi-Square  | 8.313 <sup>a</sup> | 2  | <b>.016</b>                       |
| a. 1 cells (16.7%) have expected count less than 5. The minimum expected count is 2.65. |                    |    |                                   |

### Comparison of experience levels and solo paddling

| Experience * Go solo paddle Crosstabulation |       |              |    |       |
|---|-------|--------------|----|-------|
| Count                                       |       | Go solo boat |    | Total |
|   |       | Yes          | No |       |
| Experience                                  | 0-5   | 29           | 38 | 67    |
|   | 6-10  | 25           | 20 | 45    |
|   | 11-15 | 32           | 5  | 37    |
|   | 16-20 | 12           | 5  | 17    |
|   | 21-25 | 5            | 1  | 6     |
|   | 25+   | 35           | 3  | 38    |
| Total                                       |       | 138          | 72 | 210   |

| Chi-Square Tests  |                     |    |                                   |
|---|---------------------|----|-----------------------------------|
|   | Value               | df | Asymptotic Significance (2-sided) |
| Pearson Chi-Square  | 36.862 <sup>a</sup> | 5  | <b>&lt;.001</b>                   |
| a. 2 cells (16.7%) have expected count less than 5. The minimum expected count is 2.06. |                     |    |                                   |

## Comparison of instructor levels and solo paddling

| Overall Instructor * Go solo boat Crosstabulation |                     |              |    |       |
|---|---------------------|--------------|----|-------|
| Count   |                     | Go solo boat |    | Total |
|   |                     | Yes          | No |       |
| Overall Instructor                                | No qualification    | 77           | 55 | 132   |
|   | Flatwater (L1 or 2) | 39           | 18 | 57    |
|   | Intermediate (L3)   | 23           | 1  | 24    |
|   | Advanced (L4 or 5)  | 13           | 0  | 13    |
| Total   |                     | 152          | 74 | 226   |

| Chi-Square Tests  |                     |    |                                   |
|---|---------------------|----|-----------------------------------|
|   | Value               | df | Asymptotic Significance (2-sided) |
| Pearson Chi-Square  | 20.037 <sup>a</sup> | 3  | <.001                             |
| a. 1 cells (12.5%) have expected count less than 5. The minimum expected count is 4.26. |                     |    |                                   |



## Appendix 6: Paddler Safety Survey Questions

This survey is part of a Sport Ireland funded initiative to research safety culture within paddle sports in Ireland. You must be over 18 to complete this survey.

This research explores the safety culture of paddlesports across Ireland. The purpose is to generate data to assist in improving the already strong safety culture across the various disciplines. The overall safety culture will be examined with a focus on perceptions and attitudes of individuals, as well as the policies and protocols of the clubs.

You will be asked to complete a questionnaire that contains a number of long answer questions, as well as tick-the-box answers. Please provide as much information as you can.

There is minimal risk to taking part in this research inquiry. Your identity will be protected at all times – no personal information will be asked for or recorded and the data generated will be confidential. If you do decide to take part in this research, you can decide to withdraw at any time prior to submitting the completed survey, with no explanation prior to submitting your survey. Once submitted, it will not be possible to withdraw your anonymous data from this survey. By submitting this survey, you are providing your informed consent to participate in this research.

It is also worth noting that the findings of this research may be submitted to a number of publications as part or disseminating the research findings.

This survey should take approximately 10 minutes to complete.

Thank you!

1. I have read the above text and consent to participate in this research.  
Yes/No
2. What is your gender?  
Female/Male/Non-binary Prefer not to say/
3. How old are you?  
18-23/24-30/31-40/41-50/51-60/61+
4. How many years paddling experience do you have?  
0-5/6-10/11-15/16-20/21-25/25+
5. Are you a member of Canoeing Ireland?  
Yes - through my club/Yes - through my college club/Yes - as an individual member/No
6. What type of paddling are you actively involved in?  
River kayaking/Open canoeing/Sea kayaking/Wildwater racing/Marathon/Sprint/Slalom/Polo/Kayak surf or waveski/Freestyle/SUP/Recreational flat-water/Other
7. Have you undertaken training in any of the following:  
Kayak/paddlesports skills training/Kayak/paddlesports instructor training/First aid training/Safety awareness on water/ Lifesaving/ Other
8. Have you a skills certificate in kayaking? If so, which level do you have?  
Level 1/2/3/4/5

9. Have you an instructor certificate in kayaking? If so, which level do you have?  
Level 1/2/3/4/5
10. Have you a skills certificate in sea kayaking? If so, which level do you have?  
Level 1/2/3/4/5
11. Have you an instructor certificate in sea kayaking? If so, which level do you have?  
Level 3/4/5
12. Have you a skills certificate in open canoeing? If so, which level do you have?  
Level 1/2/3/4/5
13. Have you an instructor certificate in open canoeing? If so, which level do you have?  
Level 1/2/3/4/5
14. Have you a competitive coaching certificate? If so, which level do you have?  
Level 1/2
15. Have you an instructor/coach developer certificate?  
Yes/No
16. Please outline here any other relevant training or CPD you have attended.
17. How would you define an accident?
18. Please provide an example of an accident you have encountered.
19. How would you define a near-miss?
20. Please provide an example of a near-miss you have encountered.
21. How would you define the following scenarios? (Choose between accident, near-miss, or unsure)
  - A paddler loses their boat during a trip and is rescued safely. Once ashore has to make their own way on foot back to their car.
  - An instructor out with a group paddling and misjudges a situation and ends up having to self-rescue or get rescued by the group members.
  - A paddler who ends up swimming on a rapid and has to be administered first aid on reaching the bank.
  - A paddler who swims and requires CPR.
  - A cut finger.
  - A group misjudges the tide and has to wait an extra 2 hours before paddling back to their start/finish point.
22. Have you ever gone paddling on the water alone? If yes, what precautions do you take?
23. Do you think it is safe to paddle alone?  
Yes/No/Unsure  
The remaining questions were all likert questions with the following scale:  
Strongly disagree - Disagree - Neither agree nor disagree - Agree - Strongly disagree
24. Safety Awareness  
In our club/group:
  - The members are aware of their part in safe paddling.
  - People think safety concerns do not relate to them.
  - People are well-aware of the safety hazards involved in paddlesports and are careful to minimise and avoid them.
  - Consideration is given to protecting the environments in which we paddle as much as is practical.
25. Teamwork  
In our club/group

- People ask for help/advice with safety when they need it.
  - People do go out of their way to help each other paddle safely.
  - Instructors/coaches are always available when we need help/advice.
  - Paddlers who have to follow safety and health procedures are seldom asked for input when the procedures are developed or changed.
- 26. Pride and Commitment**  
In our club/group:
- People take pride in how safely we operate.
  - I can have a significant impact on the club/group's safety record.
  - People think safety isn't their concern—it's all up to their instructor/coach and others.
  - Safety is seen as the responsibility of each individual paddler.
- 27. Good Practice**  
In our club/group
- We are always trying to improve on safety performance, even when we are doing well.
  - People follow safety protocols, even when instructors/coaches are not looking/there.
  - People are encouraged to express new safety ideas and suggestions.
  - We check our equipment is safe on a regular basis.
- 28. Communication and Reporting**  
In our club/group:
- We have a clear process for recording incidents/near-misses that everyone knows about.
  - We hesitate to report near-misses.
  - We hesitate to report minor injuries and incidents/accidents.
  - There's lots of confusion about who to contact with safety concerns.
- 29. Leadership and Supervision**  
In our club/group:
- We don't show much concern for safety until there is an accident.
  - The people who make safety decisions don't know what happens on the water.
  - The committee seldom works with the members to identify and correct safety concerns or problems.
  - Coaches/instructors/trip leaders who will implement plans are seldom involved in reviewing the safety implications of these plans.
- 30. Training**  
In our club/group:
- People mostly give lip service to safety training they do little to actively support it.
  - Committee members/coaches/instructors are not very well trained to identify and address safety concerns.
  - Safety training is done on a regular basis.
  - People in this club/group are well prepared for emergencies, and everyone knows just how to respond.
- 31. Safety Effectiveness**  
In our club/group:

- In general, people are well acquainted with the safety procedures for their trips.
- People carefully follow the written safety procedures.
- People can report a safety problem several times, yet the problems may remain unaddressed.
- Lessons learned from accident investigations aid in improving safety.

## Appendix 7: Club systems Audit Survey Questions

This survey is part of a Sport Ireland funded initiative to research safety culture within paddle sports in Ireland. You must be over 18 to complete this survey. This form is for club officers to complete.

This research explores the safety culture of paddlesports across Ireland. The purpose is to generate data to assist in improving the already strong safety culture across the various disciplines. The overall safety culture will be examined with a focus on perceptions and attitudes of individuals, as well as the policies and protocols of the clubs.

You will be asked to complete a questionnaire that contains a number of long answer questions, as well as tick-the-box answers. Please provide as much information as you can.

There is minimal risk to taking part in this research inquiry. Your identity will be protected at all times – no personal information will be asked for or recorded and the data generated will be confidential. If you do decide to take part in this research, you can decide to withdraw at any time prior to submitting the completed survey, with no explanation prior to submitting your survey. Once submitted, it will not be possible to withdraw your anonymous data from this survey. By submitting this survey, you are providing your informed consent to participate in this research.

It is also worth noting that the findings of this research may be submitted to a number of publications as part of disseminating the research findings.

This survey should take approximately 10 minutes to complete.

Thank you!

1. I have read the above text and consent to participate in this research.  
Yes/No
2. What is your role in the club  
Chair/Secretary/Treasurer/Safety/Officer/PRO/Other
3. Which region is the club located?  
Munster/Ulster/Connaught/Leinster
4. How many members are in the club?
5. How many years has the club been in existence?
6. What paddlesport disciplines do you facilitate?  
River kayaking/Open canoeing/Sea kayaking/Wildwater racing/Marathon/Sprint/Slalom/Polo/Kayak surf or waveski/Freestyle/SUP/Recreational flat-water/Other
7. Can club members borrow club equipment for personal paddling sessions?  
Yes/No/Unsure
8. How many qualified coaches and instructors are members of the club?
9. Does the club allow members that are not qualified coaches or instructors to lead club sessions?  
Yes/No/Unsure
10. Does the club have an accident/incident reporting systems?  
Yes/No/Unsure
11. Does the club have a system for reporting a near-miss?

Yes/No/Don't know

- 12.** Has the club ever been audited for safety purposes, by Canoeing Ireland or another body?  
Yes/No/Unsure
- 13.** At committee meetings could you please outline briefly if/when and how incidents and near-misses are raised/considered at meetings? If there is follow-up how is this conducted and reviewed?
- 14.** How often does the club have a safety meeting (or have safety as an agenda item on the regular committee meeting)?
- 15.** How were your club safety statement and operating procedures developed?
- Borrowed original documents from another club and use them as they were.
  - Borrowed original documents from another club and adjusted them to suit our location and paddling.
  - Developed the original documents from scratch to suit our club and paddling.
- 16.** How often are club safety procedures and documents reviewed and by whom?
- 17.** How often are safety checks carried out on club equipment? (Please indicate the frequency and types of checks and equipment that is reviewed, if different review persons for different equipment, please let us know)
- 18.** Please define what the club would consider an accident (please provide an example)?
- 19.** Please define what the club would consider a near-miss (please provide an example)?
- 20.** Please outline how near misses/incidents/accidents are recorded, reviewed, and reported within the club and the follow-up, if any occurs.
- 21.** Do the committee and/or members receive a report when an incident has occurred, formally or informally?
- 22.** How do the committee act on this report if action is needed?
- 23.** We are seeking copies of the following documents and would appreciate if you could indicate which ones you are able to provide us with
- 24.** Safety statement/Risk assessments/Maintenance/safety check completion lists/records/Summary of annual incident and near-miss logs/reports/Incident/near-miss reporting procedure
- 25.** Please tick the box that best represents what happens in your club:  
Strongly agree-Agree-Neutral-Disagree-Strongly disagree-Don't know
- Members are encouraged to express new safety ideas and suggestion.
  - We frequently have safety training days (>6 a year).
  - We sometimes have safety training days (1-3 a year).
  - I feel comfortable reporting a safety incident.
  - I know what to do and who to contact in the event of an accident/near -miss.
  - Funding or other support for safety training is readily available.
  - Safety training courses usually fill fairly quickly and we do not have to coerce people to participate.
  - There is never a shortage of people to lead/instruct on trips/sessions.
  - We always have plenty of people progressing through instructor training.
  - SOPs and other safety procedures are readily accessible and available to members
- 26.** Please provide an email address that we could contact you at to access copies of the above paperwork, if available.

## Appendix 8: A Note on Paddleboarding

Paddleboarding as an adventure sport in Ireland is presently claimed under the auspices of Canoeing Ireland and Irish Surfing, with each NGB offering a training course for instructors. These training course may best be described as bolt-on courses and available to either existing canoe/kayak instructors or surf instructors depending upon the NGB offering the training. Within each NGB instructor offering, there appears to be both overlap and differentiation of content and remit.

There is also a third-party qualification on offer in Ireland through the International Academy of Surf Instructors (ASI). The ASI award was specifically developed for paddleboarders. As this is part of an international award it also offers access to an international network.

The ASI have 25 approved schools across Ireland. They also offer insurance cover and have a quality assurance framework for approved schools to adhere to undertake inspection of documentation, related safety and risk assessments, as well as site visits/inspections. In summary, paddleboarding currently occupies a contested space in paddlesports in Ireland. While a home for the sport is most likely going to be decided/shared at an international level between the International Canoe Federation (ICF) and the International Surfing Association (ISA). This will be most likely be a 'temporary fix' as the continuing evolution of the sport has it crossing boundaries into other sports (sailing, windsurfing, etc). Looking to the UK it is evident that the biggest increase in paddlesport incident involves paddleboards (RNLI, 2022), so it is logical to assume a similar pattern may follow here. A previous MAIB report (2022) was critical of the absence of clear safety messaging around paddleboarding and of Sport England in not ensuring that there was one governing body responsible. Again, it is likely that a similar critique could be levelled at Sport Ireland in the event of a fatality or major incident in Ireland.